THE
RAILWAY GAZETTE
A Journal of Management, Engineering and Operation
INCORPORATING
The Railway Engineer · TRANSPORT · The Railway News
The Railway Times · Herapath's Railway Journal · RAILWAY RECORD
RAILWAYS ILLUSTRATED · ESTABLISHED 1835 · The Railway Official Gazette

PUBLISHED EVERY FRIDAY
AT
33, TOTHILL STREET, WESTMINSTER, LONDON, S.W.1

Telegraphic Address: "TRAZETTE, PARL., LONDON"
Telephone No.: WHITEHALL 9233 (7 lines)

Annual subscription payable in advance and postage free
British Isles and Abroad.....£2 5s. 0d.
Single Copies.....One Shilling
Registered at the General Post Office, London, as a Newspaper

VOL. 76 NO. 25 FRIDAY, JUNE 19, 1942

CONTENTS

	PAGE
Editorials	665
Letters to the Editor	668
Publications Received	668
The Scrap Heap	669
Overseas Railway Affairs	670
Intermediate Signalling in the Severn Tunnel, G.W.R.	672
Railway Managements and Locomotive Engineering	674
The Work of the Railway Clearing House—I	676
Railway News Section	679
Personal	679
Transport Services and the War	682
Stock Market and Table	688

GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

NOTICE TO SUBSCRIBERS

Consequent on further paper rationing, new subscribers cannot be accepted until further notice. Any applications will be put on a waiting list which will be dealt with in rotation in replacement of subscribers who do not renew their subscriptions

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and facilities for such dispatch.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

REDUCTION IN SIZE OF PAGE

To economise in paper our readers will observe a slight reduction in the size of THE RAILWAY GAZETTE *in that the size of the page has been reduced from* 9 *in.* × 12 *in. to* 8½ *in.* × 11½ *in. The type area of the page remains the same, namely,* 7 *in.* × 10 *in., but the surrounding margins have been reduced. This of course detracts from the appearance of the paper, but is one of the exigencies of the war*

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:
Mondays to Fridays 9.30 *a.m. till* 5.30 *p.m.*
The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

The King's Birthday Honours List

BECAUSE of the vital part which transport and the heavy industries are playing in the successful prosecution of the war, no surprise will be occasioned by the inclusion in the King's Birthday Honours List of the names of many who are prominently associated with those industries, although in some respects at least the list may be considered as notable for its omissions as for its scope. Of the six Baronets, two are men who have achieved distinction in shipping or railway circles; Mr. Thomas Harrison Hughes was lately Director of the Liner Division of the Ministry of War Transport, and Sir Francis Joseph is a Director of the London Midland & Scottish Railway Company. Among the Knights Bachelor, Mr. John Frederick Heaton, Chairman & Managing Director of Thomas Tilling Limited, and a Member of the Inland Transport War Council, receives well-merited recognition of his important work in the road transport industry in which recently he has taken an outstanding part in producer-gas development. Mr. R. H. Hill, Deputy Director-General of the Ministry of War Transport since its formation by the fusion of the Ministries of Shipping and Transport, receives the K.B.E. Mr. Hill has been closely associated with railways in his civil service career. He entered the Railways Department of the Board of Trade in 1912, and he served with the old Ministry of Transport since its formation in 1919. When the Government assumed control of the railways on September 1, 1939, Mr. Hill became Railway Control Officer at the Ministry. Elsewhere in this issue we give some details of the careers of Mr. Hill and Mr. Heaton, and also a selection of the names which appear in the Honours List.

Southern Railway and Southampton

A comprehensive report on the replanning of Southampton, which has been prepared for the local council by Mr. S. D. Adshead, F.R.I.B.A., Consultant, and Mr. H. T. Cook, Town Planning & Development Officer, points out that after the war Southampton may assume an importance as an air transport centre which will be comparable with its renown as a port. Part of the report, which was summarised in *The Times* of June 9, said that the town before the war "had just completed a scheme for reclaiming a large area of land along the north bank of the estuary of the Test, and had built a wharf some 7,000 ft. long and a dry dock capable of accommodating the largest passenger vessels in the world." Mr. E. J. Missenden, General Manager of the Southern Railway, in a letter in *The Times* of June 11, asked whether these works completed "by the town" can by chance have any connection with the development planned, financed (with Government backing), and carried out by the Southern Railway. This scheme, he pointed out, included the new docks with their new transit sheds, the King George V Graving Dock, and a trading estate on the recovered land (part of which was handed over to the town in its reclaimed condition). The following day *The Times* printed a letter from Mr. Ronald H. Meggeson, Town Clerk of Southampton, agreeing that the wharf and dry dock had been constructed, not by the corporation, but by the Southern Railway, which had also carried out the reclamation work.

Nitrate Railways Expropriation

Expropriation, under payment of an indemnity, of the undertaking in Chile of the Nitrate Railways Co. Ltd. was decreed by the Chilean Government on August 28, 1941, but the amount of the indemnity has still to be fixed. The procedure to be followed has been explained by the Chairman of the company, Mr. P. F. Fleming, in a statement issued to the stockholders. A Commission of three prominent citizens named in the decree has to make a valuation of the undertaking, and a Bill will be submitted to Congress to authorise the issue of State bonds to the amount of the valuation, the bonds to have a service of 4 per cent. for interest and 2 per cent. for amortisation. Because of the death in November last of the President, Don Pedro Aguirre Cerda, and the resultant proceedings for the election of a new President, it has not yet been possible to submit a valuation Bill to Congress. Another question to be settled, before the precise amount of the bonds receivable by the company can be determined, is whether only the permanent way of the Iquique—Noria section reverted to the Government on the expiry of the concession in 1936, or whether the Government is entitled also to the rolling stock and other appurtenances. The remaining sections to be expropriated under the decree are:—San Pablo—Lagunas, about 91 miles; the line connecting La Noria and Negreiros, with branches on the Pampa, 143 miles; and the line from Pisagua to Negreiros, 90

miles. Meanwhile the company continues to work the entire system of 384 miles on the 4 ft. 8½ in. gauge.

■■■■

The Work of the Railway Clearing House

The Railway Clearing House, which, like its counterpart, the Bankers Clearing House, is a behind-the-scenes organisation, has made possible during the past century the provision of public railway facilities on a nation-wide scale, despite the fact that the lines and their equipment were owned by a multitude of companies. Although railway amalgamation has reduced this work, the Coaching and Merchandise sections of the R.C.H. Traffic Department continue to perform vital functions in connection with the British railway system, and these sections have adhered most closely to the primary purpose for which the railway clearing system was established, namely, to enable passengers to book through from one company's stations to those of other companies; to facilitate merchandise of all types and livestock being booked through and carried without necessarily being shifted or re-assorted; and to apportion correctly between the companies concerned the charges paid for all such conveyance. The work of the Traffic Department of the R.C.H. forms the subject of a short illustrated article at page 676 this week. In addition, the Railway Clearing House has provided neutral ground for railway executive officers to discuss matters connected with railway management, and the effect has been both far-reaching and beneficial. Such work, despite its variety, comes within the scope of the Secretarial Department, which is the second of the two broad categories into which the activities of the R.C.H. may be divided, and which we hope to describe in a subsequent article.

■■■■

Post-War Objectives of the I.T.W.F.

The International Transport Workers' Federation, which has its headquarters in Great Britain, has set forth suggestions for peace aims which the trade union movement could support, and which, on the ground that the international trade union movement has always advocated organisation of the world economy, include a scheme for a universal economic organ. In broad outline the functions of this body would include: (1) Combating natural and artificial famines, for example, those which will result from the present war; (2) organising the flow of exportable surpluses of materials and products; (3) judicious distribution of materials and products of which the supply falls short of the demand, and steps to increase their production; (4) organising the world's transport services; (5) assisting countries with a low standard of living in using their resources of wealth; (6) promoting and guiding redistribution of populations by organising migration and the colonisation of thinly populated regions; and (7) securing a judicious use of the earth's resources and, if necessary, temporarily restricting the consumption of certain materials in certain regions (such as forests and whales).

■■■■

The Northern Railway Officers' Association

The Northern Railway Officers' Association (Nordiska Järnvägsmannasällskapet) was founded in 1869 and has its headquarters in Stockholm. By 1874 it had embraced the railway managements of the four so-called Northern countries, Sweden, Norway, Denmark, and Finland, and has ever since enjoyed a useful and prosperous career. A year or two later it began to issue an official journal, known at first as the *Jernbaneblad*, and later as the *Nordisk Järnbanetidskrift*, publication of which has continued uninterruptedly, except for the period April—October, 1940, when it was suspended by reason of the difficulties caused by the German invasion of Norway and Denmark. The journal now appears monthly and articles are printed in the language of the author, except in the case of contributions from Finland, which appear in Swedish. Congress meetings are held regularly, in all four countries in turn, to discuss technical, administrative, and operating questions and arrive at standard methods suited to the circumstances prevailing in that part of Europe. The war interrupted the preparations for the 1940 Congress, planned to take place in Copenhagen. The present editor of the journal is Herr H. Tillinger, Stockholm.

■■■■

Life of Rails in Wartime

Railway maintenance engineers are becoming increasingly alive to the fact that the life of steel rails is not ruled by abrasive wear alone. Considerable assistance towards the prolongation of life can be given by careful attention to line and surface, and, on curves, to superelevation, both in laying and maintenance; closer watch on the packing of sleepers at joints reduces rail-end batter (especially in flat-bottom rails), and the effect of batter on life can be minimised by rail-end hardening and systematic reconditioning of battered ends; more extensive use of rail lubrication increases life on curves, and corrosion losses and fatigue cracks, particularly in damp tunnels, can be countered by the use of suitable protective coatings. It is also more fully realised that external causes may be responsible for serious damage to rails, such as wheel-burns due to slipping locomotive driving wheels, and rail fractures resulting from improper locomotive balancing or the operation of unsuitable locomotives at excessive speeds; the reduction or elimination of such damage calls for inter-departmental co-operation. The necessity for greater care in the conservation of track materials was brought home to American railways in the depression years 1931 to 1939, when for lack of means the average yearly rail renewals fell from the 2,064,710 tons of the years 1925 to 1930 to 714,014 tons. There was a recovery to 1,200,000 tons in 1941, but a demand by the railways for 657,110 tons in the first quarter of 1942 was whittled down by the War Production Board to 350,000 tons, and actually, owing to war priorities pushing rails into the background, a bare 150,000 tons were obtained. In this country the war has caused some restrictions on rail output, but so far the railways have obtained considerably better supplies than in the corresponding period of the 1914-1919 war.

■■■■

Britain's Longest Tunnel Re-Signalled

The Severn Tunnel, the longest in this country, is not only steam-operated but, unlike some other long tunnels where that still obtains, comprises heavy gradients running down on each side to the level stretch below the river. Until recently it formed one block section, but intermediate signalling, as described at page 672, has now been installed to afford additional facilities. As visibility is frequently much impeded by steam, the intermediate signal has two red lights and a special repeater signal in rear, with A.T.C. ramps at both. No train may go forward to the intermediate signal at danger unless the locomotive is equipped with A.T.C. The adverse atmosphere and ballast conditions necessitated special track-circuit arrangements—coach screws have replaced fang bolts, for example—and apparatus cases, and the proving, block, and other control circuits present points of interest. The general operating principles are, however, substantially the same as those employed elsewhere on the G.W.R., which first made use of intermediate signalling in 1907.

■■■■

The Railways and their Critics

It is not often that verbal onslaughts are made on both the railways and their chief mechanical engineers, or, shall we say, the locomotive departments at one and the same time, but this has been reserved for the author of an article which appeared in a recent issue of our contemporary, *Chemistry & Industry*, under the somewhat resounding title of "Chemical Engineering for Transport: Scientific Methods for Railways." According to this the standard steam locomotive is a "grotesque contrivance," a terrible fuel-waster and lacking in thermal efficiency. The railway companies themselves are upbraided in that according to the author's views they have "fought against" every primary advance in railway operation such as steam heating on trains, electric lighting, superheating, dining and sleeping cars, and steel coaches, to mention only a few examples. Our readers will be able to judge the nature of the indictment for themselves by referring to pages 674-5 of this issue at which they will find an abstract of our contemporary's article and a reply thereto written from the railway viewpoint. Chemical engineers and fuel technologists have, it may be conceded, played an undeniably important part in the development of the locomotive, but that is something quite different from asking them to take a hand in the designing of the locomotive considered as a machine built for traction purposes; that is the business of the locomotive engineer proper who, as a rule, is quite capable of carrying out this particular aspect of his task unaided.

■■■■

The Royal Electrical & Mechanical Engineers

The reorganisation resulting from the formation of the Royal Electrical & Mechanical Engineers, the new corps responsible for Army mechanical maintenance, including the recovery and repair of tanks in action, came into operation in the United Kingdom as from June 1, and will apply to theatres of war overseas as soon as practicable, dependent upon operations. Army personnel involved in the formation of the new corps will continue to belong

to their present corps until the early autumn, probably September, when they will be transferred to the R.E.M.E. on the completion of the many administrative details. The new corps will be made up of three principal components :—

(i) The entire mechanical engineering side of the R.A.O.C.
(ii) All maintenance personnel of the R.A.S.C. except those serving in transport platoons and workshop platoons within R.A.S.C. transport companies.
(iii) A portion of the mechanical maintenance personnel of the Royal Engineers.

The formation of the R.E.M.E. will also result in the R.A.O.C. being given full control as regards the provision, storage, and issue of all vehicles, including spare parts, for the Army. This means that certain R.A.S.C. personnel will be absorbed in R.A.O.C. The reorganisation in this respect took place in principle as from June 1, at the same time as that affecting the R.E.M.E., but, in the case of both reorganisations, the personnel concerned will continue to belong to the R.A.S.C. until the early autumn, when they will be transferred definitely to the R.A.O.C. and the R.E.M.E. respectively. Although there is a considerable change in the functions hitherto performed by the R.A.S.C. and the R.A.O.C., and some slight change in those of R.E., there is, of course, no question of any of these corps in any way losing their identity. Each will continue to carry out vital duties necessary for the operations of the Army in the field. An indication of the size of the transfers concerned in the reorganisation is given by the following percentages :—

(*a*) From R.A.O.C. to R.E.M.E.	...	60 per cent. of total War Establishments.
(*b*) From R.A.S.C. to R.E.M.E. ...	...	1·6 " " " "
(*c*) From R.E. to R.E.M.E. ...	...	0·7 " " " "
(*d*) From R.A.S.C. to R.A.O.C.	...	5 " " " "

Railway Supply Industries Joint Committee

THE railway supply industries have set up a joint committee which is to act as a co-ordinating body for dealing with agreed matter of common interest. The basis of the development is the bringing together, through representatives on the joint committee, of various export groups which have been formed since the war, and which cover all aspects of the railway supply industries. These are :—

Mr. F. S. Whalley, M.C. Mr. H. Wilmot ...	Locomotive Industry Export Group
Mr. A. J. Boyd ... Mr. H. J. S. Moyses ...	Railway Carriage & Wagon Builders' Export Group
Mr. N. H. Morris ...	Railway Carriage & Wagon Accessories Export Group
Captain B. H. Peter ...	Railway Brakes & Signals Industrial & Export Group
Mr. T. L. Taylor ...	Railway Tyre, Axle & Wheel Manufacturers' Export Group
Mr. Wm. Walker ...	Railway Springs Export Group
Mr. J. W. Vaughan ...	Secretary

Mr. F. S. Whalley, M.C., President of the Locomotive Manufacturers Association, is to be the first Chairman of the joint committee. It is important to note that care has been taken to ensure that the individual entity, not only of the constituent groups, but of the industrial units comprising the groups, will be in no way affected. Nothing in the nature of an amalgamation or merger is contemplated, either in a financial or operating sense ; the aim is to link the groups by means of the joint committee of their own representatives whose usefulness in the service of members it is hoped may grow.

The railway supply industries are to be congratulated on the initiative which has led them to be the first to take a step of this kind. There can be no doubt of the value of an organisation of this kind, both to the industries and to the nation, and, although the usefulness of the joint committee will undoubtedly be considerable in present circumstances, it is probable that its full importance will not be realised until after the war. There must always be a number of important matters of principle which affect all the units of a group of industries, and the ability to speak with a united voice through a central organisation may prove of inestimable value. Nor can it be overlooked that the industries which have now grouped themselves, collectively comprise an extremely important section of British export trade in normal times. With the return of peace and the re-opening of overseas trade these industries will be in a position, as a result of their foresight, to plan a common policy. It is not to be expected that minor divergences of interest, or view, or policy may not arise among groups covering so wide a variety of manufacturers, but by regular meetings of their representatives on the joint committee, a unique opportunity will be afforded for exchanges of views and for formulating policy and co-ordinating action.

G.W.R. CENTENARY OF ROYAL TRAVEL

The following message from H.M. The KING has been received by the Great Western Railway Company :—

"The Chairman, G.W.R. Paddington. Please convey to your fellow-Directors, Officers, and staff My sincere thanks for their kind and loyal message on the occasion of the interesting anniversary on Saturday, June 13. GEORGE R.I."

Speed and Balancing of Single-Drivers

MORE than one critic has stated that single-driver express locomotives seldom showed any superiority in speed over contemporary coupled locomotives, and indeed, in some cases, they proved definitely inferior in this respect. This aroused great interest at various times and was on occasion a subject of controversy. It was always assumed that a single engine ran much more freely and economically than a coupled one, and this was considered as a valuable set-off against the reduced adhesion attending the use of only one pair of drivers. The experiments of Leitzmann showed that coupling rods are responsible for no less than 20 per cent. of the frictional losses in a four-coupled locomotive even at low speeds and thus the problem becomes somewhat inexplicable on the surface. The theory which postulates "imperceptible slipping" of the single driving wheels is also one that has aroused considerable discussion. Opponents of the theory raise the point that, as sliding friction is less than static friction, once slipping has commenced it should continue indefinitely, that is, until steam is cut off; but a careful examination of all the facts, which have never been collated fully before, shows that this objection is untenable, and that the "slipping" theory is perfectly sound. It is of interest to investigate the causes which led to slipping, and also how this theory links with other known phenomena in locomotive history.

In such an investigation it is important that certain factors should be borne in mind; first, it was customary in the days of the single driver to balance a very large proportion of the reciprocating masses; secondly, the driving wheel was invariably situated with carrier-wheels on either side of it; and thirdly, the track of that period was less resilient than it is today. Now at rest the forces acting on a driving wheel will be, (*a*) its own weight W, (*b*) the spring load L, and (*c*) the reaction of the rail R, so that $R = W + L$. When travelling at speed, and when the balance weight is passing over the top quarter, the upward centrifugal force, due to the heavy balance employed, will be very considerable. In order to maintain equilibrium, either R must decrease, or L must increase, or both; and bearing in mind the low resilience of the track, and the fact that it is held down on either side of the driving wheel by the weight on the leading and trailing wheels, a very small rise of the wheel will produce a large reduction in R. In other words, the upward centrifugal force will be balanced almost entirely by a decrease in effective adhesion weight. As this event coincides with the greatest thrust of the piston, slipping will momentarily occur until the diminution in tractive force, and the increase in adhesion as the cranks move round, re-establish adhesion to the rail. The wheel will thus move with an irregular "bouncing" motion, slipping slightly at the summit of each "bounce." As the cranks of a two-cylinder locomotive are at right-angles and rigidly fixed together, it is clear that in practice the slip will take place at the point where the two balance weights together exert their maximum upward force, that is, when the *R-H* crank is on the bottom back angle and the *L-H* crank on the bottom front angle, that is, if we assume the *R-H* crank to be leading. A visual demonstration of this "bouncing" effect may be obtained by observing certain Atlantic type locomotives from rail level, when starting away from near a water column with a heavy train. During the violent slipping which usually ensues the "bouncing" of the wheels as the balance weights pass over the top quarter is clearly visible if the speed of revolution is sufficient. When it is realised that such an effect can be observed in a comparatively modern engine with the balancing distributed over two axles and running on modern track, it can be judged how considerable it was in the case of single-drivers with their excessive and non-distributed balance weights and running on lighter rails.

The practice of balancing very large percentages of reciprocating masses was probably a cause of certain other phenomena in the latter part of the 19th century. The breaking of driving axles in single-driver locomotives was probably due to the twisting stresses set up in the axles because of the tendency of each wheel to slip independently; the wearing of flats on driving tyres at a point approximately opposite the cranks may also be attributed to instantaneous slipping when the balance weights passed over the top quarter. It is probable, likewise, that rail breakages attributed to excessive weight on the driving axles of Patrick Stirling's celebrated 4-2-2 locomotives of the Great Northern Railway were in no small measure due to hammer-blow when the balance weights passed over the bottom quarter. It is further possible, as pointed out by Ahrons in his book, "The British Steam Locomotive," p. 188, that the "slipping" action also took place in early coupled locomotives, in which all the balance was concentrated in the driving wheels. This resulted in considerable strain being imposed upon the coupling rods, which were consequently frequently bent or thrown off—a failing that ceased when balancing was distributed over both pairs of coupled wheels. Thus it is seen that the theory is not only sound dynamically, but also that it does explain many other points.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

The State and the Railways

Thaxted, Essex
June 10

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I did not reply to the suggestion in the leading article in your May 22 issue that I was "unfair to the managements" because I thought it obvious that the letter under review did not criticise the managements in any way whatever. By "managements" I mean, of course, the General Managers and their more important officers. When we deal with matters directly affecting the stockholders' interests—such as negotiations between the State and the companies—we have to recognise that the responsibility of the boards in affairs of that order is something they cannot delegate to their officials. However the decision is reached, whatever the decision may be, they alone must shoulder the responsibility for it.

What, however, I am inclined to criticise is the slackness in expression that uses the term "managements" sometimes as a reference to the technicians and sometimes as a reference to the boards. Confusion of this kind is not helpful; because the technicians (meaning the General Managers and their assistants) are essential to the railways whatever their future may be, whereas the boards (meaning unwieldy committees, recruited from men primarily interested in other matters) are a legacy from circumstances now past and forgotten.

When it is a question of the possible acquisition of the railways by the State, the stockholder is both purchaser and vendor. As a taxpayer, he cannot—or should not—agree to a bargain prejudicial to the State; as a stockholder he cannot—or should not—agree to a bargain unfair to himself. Thus I deprecate such fanciful solutions as the acquisition by the State of permanent way and terminals to be utilised by private companies for their own benefit. Quite as strongly, I object to the confidence-destroying doctrine that the State has only to desire private property in order to acquire it on its own terms. Fortunately there is such a thing as an English sense of fair play, and if ever this question becomes a live issue I trust that both taxpayer and proprietor will be able—like Mr. Stevens and myself—to find a meeting place within the terms of the 1921 Act.

I am,
Yours very truly,
ASHLEY BROWN

Publications Received

Facts about British Railways in Wartime, 1942.—This booklet, issued by the British Railways' Press Office on behalf of the four main-line companies and London Transport, presents in some 40 pages a clear picture of the contribution which the British railways are making to the war effort, and the briefest glance through its pages should cause those who, even now, grumble about train services to think again. Many interesting facts and figures are given to illustrate various phases of railway working, and to show how problems have arisen and have been overcome. There is a short description of the financial position of the railways and of the system of government control, and an explanation of the way in which goods and passenger transport demands have been met, and of the preparation of locomotives and wagons for overseas. Other pages tell a remarkable story of the part played by the railways in defence, A.R.P., and fire-fighting, and of the swift repair of damage after enemy action, which calls forth a tribute to the bravery and efficiency of the staff. The text concludes with paragraphs on salvage and fuel economy, and with some interesting facts and statistics in brief.

When Railroads Were New. By Charles Frederick Carter. New York, U.S.A.: Simmons-Boardman Publishing Corporation, 30, Church Street. 8¾ in. × 5½ in. × 1¼ in. 324 pp. + xiv pp. Illustrated. Price $2.50.—Perhaps by reason of the fact that the U.S.A., alone of all the great countries of the world, remained outside the range of actual hostilities for the first two years of the war, its railways have attracted more widespread interest than heretofore. They have been able to develop and improve their facilities in a way that has been barred to most other systems, and world progress in such spheres as diesel traction and high speed has been that of the U.S.A. Within recent years a considerable literature has been produced, dealing with most aspects of American railways, but in earlier years, although whole libraries of American railway books were published, they were confined to certain aspects, such as finance (both high and ordinary), construction and operation from a technical viewpoint, "moral turpitude," and accidents. There was one outstanding exception in the volume "When Railroads Were New," which was first published as long ago as 1908, and is still, in its fourth (Centenary) edition, a standard work. It tells a fascinating human interest story of the early American and Canadian railways, and of the men who built and ran them, and is illustrated with reproductions of woodcuts of early locomotives and railway scenes. In 1908 public hostility towards the U.S.A. railways amounted almost to fanaticism, and there seemed little general desire on the part of the railways to cultivate better relations. From 1924 onwards the position has changed remarkably, and the value of popular interest in railways is widely realised. As a result, newer railway books have been produced in profusion, but Mr. Carter's work occupies a place from which there is no immediate likelihood of its being ousted.

A Study of Railway Transportation.—Two booklets, each of some 50-60 pages, have been issued by the Association of American Railroads in response to numerous requests from teachers, to whom they will be supplied on request, for information on railway matters suitable for school use. Volume I, which is a teacher's manual, contains an outline of suggested methods for organising a study of railway transport, including both class-room activities and visits to railway centres, as well as information useful to teachers, such as a brief chronological history of American railways, a railway bibliography, some interesting statistics, and a map. Volume II consists of a number of pages each describing an illustration, and they provide some very readable matter. At the end of each page is a series of questions on the contents of the text. An attractive set of photographs, enlargements of the pictures appearing in Volume II, and suitable for mounting, is included with the booklets, which should enable a very comprehensive elementary study to be made of railway matters.

Electric Railways in India. By Shiv Narayan. Poona, 5, India: Brij Narayan, A.M.I.E.E., & Co., Ganeshkhind Road, Shivaji Nagar. 9¾ in. × 6½ in. 128 pp. Illustrated. Paper covers. Price Rs. 4-8 net.—This publication gives a good general account of the position of electric traction on railways and tramways in India, with references also to diesel and battery-operated vehicles, and trolleybuses. Installations outside India are also mentioned, and this may be of advantage to the Indian readers, for whom the book is designed, but others may wish that the author had given more details of Indian installations and experience of them in service rather than include so much extraneous information. The descriptions given, however, of what has been achieved in India are clearly written and enable the reader to appreciate the many technical difficulties which arose and the means taken to deal with them. Water power development will no doubt enable electrification to be extended much further when peace returns, as it offers considerable advantages in many parts of the country. The volume is a welcome source of reference on what has been accomplished, and, although not professing to be a treatise, contains a chapter on the mathematics of electric traction and some useful information on the economic aspects of the question, with a glossary of technical terms which will be especially helpful to Indian students.

The "Fougasse" Painting Book.—The enterprise of the Tilling Group of Companies in launching a Road Safety Campaign by means of posters and showcards bearing slogans illustrated by "Fougasse" cartoons has already been mentioned more than once in these columns, and we have reproduced the whole of the series. As a fitting wind-up to the campaign, Thomas Tilling Limited has now published these examples of the famous artist's inimitable humour in the form of a painting book designed to encourage road safety by illustrating the main causes of road accidents. As Thomas Tilling Limited and its associates constitute one of the largest transport undertakings in the country, the group has accepted part responsibility for the task of teaching children the rules of road safety, and this painting book is the result. It has a sale price of 1s., and "Fougasse" and Tillings have arranged to devote any profits arising from the sale of the book between the Honourable Company of Master Mariners and the Merchant Navy Comforts Service, thus rendering some service to transport both on land and on sea.

"Fares Please."—For some time past the Crosville Motor Services Limited (an associate of the G.W.R. and the L.M.S.R.) has been publishing a series of advertisements in the local press describing the activities of the company under wartime conditions. Some of these advertisements have already been reproduced in our columns. The company has now issued in brochure form twelve of these press advertisements under the title "Fares Please." Every announcement has a delightful little line sketch by Mr. Douglas England, the *Punch* cartoonist. A charge of sixpence is made for the brochure, and all the proceeds arising from the sale are being given to local voluntary hospitals.

The Scrap Heap

Royal Travel on the G.W.R.

By 1848 the Royal journeys had become such a familiar feature of G.W.R. activities that the Directors decided to build a new and better "Queen's Carriage." (In last week's issue, at page 662, we recorded that on June 13, 1842, Queen Victoria had made her first journey by G.W.R. special train, from Slough to Paddington.) The new saloon was used, among other occasions, for the G.W.R. portion of the Queen's journey from Scotland to Gosport in the autumn of 1848 when the Royal household moved from Balmoral to Osborne in the Isle of Wight. This long trip, done in stages, involved two enforced changes at Gloucester and Basingstoke due to the breaks of gauge at these points. The superior comfort—and perhaps the novelty—of her new "carriage" seemed to console the Queen for these inconveniences.

In 1852, just before a similar journey in the reverse direction, the Secretary of the G.W.R. received the following letter from the Hon. Alexander Gordon, the Royal Equerry, which illustrates Her Majesty's strictly moderate taste for speed :—

Osborne
August 26, 1852

My dear Sir,

I am desired to intimate Her Majesty's wish that the speed of the Royal Train on the 30th and 31st should on no account be increased at any one part of the line in order to make up for the time lost by an unforseen delay at another, so that if any unexpected delay does take place no attempt is to be made to regain the time by travelling faster than what has been agreed upon in the Timebill you have sent me.

This order has probably arisen from one of the directors telling Her Majesty last year that they had been driving the train at the rate of 60 *miles* an hour, a gratuitous piece of information which very naturally alarmed Her Majesty, although it was probably incorrect.

I have to request that you will communicate Her Majesty's wishes to the Secretaries of the other railways concerned.

I remain,
Yours truly,
ALEX GORDON

Actually Queen Victoria did not care to travel at more than 25 miles an hour—even slower when passing over points—and usually reminded the guard of the fact before starting on her journeys. Even then she was apt to make fair use of a device by which she could sound a bell in the coach where the Superintendent was travelling, to intimate that the train was going too fast, or that the coach was swaying and bumping. She also liked the train to be signalled by platelayers throughout the journey, and a pilot engine to run fifteen minutes in advance of her train to ensure that the line ahead was clear for a considerable distance. There was also a standing instruction—possibly due rather to the solicitous foresight of the directors than to a wish actually expressed by Her Majesty—that no engine should emit steam or smoke within fifteen minutes of the Royal Train being due.

The Prince Consort, when the Queen was not present, was less conservative in the matter of pace. On July 19, 1843, he had travelled by a four-coach special from Paddington to Bristol and back, to attend the launch of the steamship *Great Britain*, designed by Brunel. The down journey took 3 hr. 6 min. including stops at Reading and Swindon and a special call at Bath for the presentation of an address. The return journey, with just the booked stops at Swindon and Reading, took only 2 hr. 40 min.

Right: Facsimile reproduction of the phrase in "Chorographia," a survey of Newcastle-upon-Tyne published in 1649, which is generally regarded as the first printed allusion to a railway in Great Britain. Nicholas Wood, with his extensive local knowledge, said that the carriages employed upon railways had always been designated waggons (whereas coal carts for road conveyance were called waynes), and decided that it was a justifiable inference that "Master Beamont" (Huntingdon Beaumont) first introduced railways in the North.

"Some South Gentlemen, hath upon great hope of benefit

benefit, come into this Country to hazard their monies in Coale-Pits, Maſter *Beamont* a Gentleman of great ingenuity, and rare parts adventured into our Mines with his thirty thouſand pounds; who brought with him many rare Engines, not known then in theſe parts; As the Art to Boore with, Iron Rodds to try the deepneſſe and thickneſſe of the Coale; rare Engines to draw Water out of the Pits: Waggons with one Horſe to carry down Coales, from the Pits, to the Stathes, to the River, &c. Within few years, he conſumed all his money, and Rode home upon his Light Horſe.

* * *

From Currency to Current

It is stated that 800 metric tons of Spanish 5 and 10 céntimos coins, which have been withdrawn recently from circulation, have been placed at the disposal of the Ministry of Public Works, so that some of the necessary copper may be obtained from them for the electrification of the Madrid-Avila and Madrid-Segovia main lines.

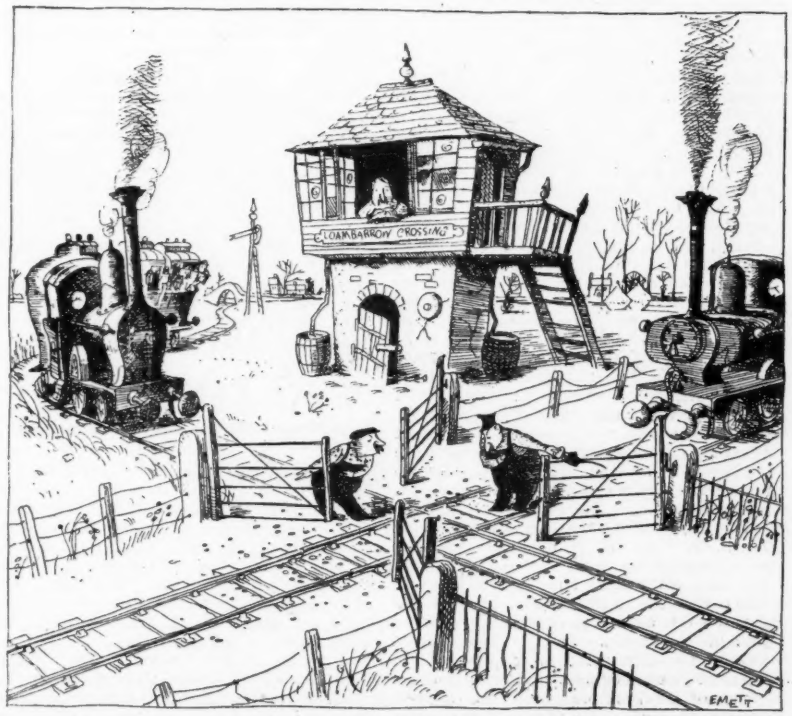
* * *

P.O. Girl Becomes Rail Announcer

Passengers daily using Waterloo Station have been full of praise for the young woman who, through the platform loud-speaker system, guides them to their trains. She is Mrs. Irma Jeffs, an ex-Post Office telephonist—a slim and attractive brunette who thoroughly enjoys her job. Mrs. Jeffs, who is the wife of a gunner in the Royal Artillery, joined the Southern Railway last October. On her way to work at the Post Office from her home at Erith she travelled to Waterloo, and was attracted by station announcing. So she telephoned to the railway and asked for a job. A test followed, and she passed it.—*From "The Star."*

* * *

Railway employees who enter certain grades have to undergo a stiffish medical test, including eyesight. A country applicant was summoned to appear before the examining doctor, and the family were disappointed on his return to hear that he was rejected on the ground of colour blindness. The fond father challenged the medico's decision. He knew his son was no more colour blind than he was deaf or dumb. "Are you sure you were polite to the doctor, Tom?" he asked, wondering if any lack of courtesy had affected the rejection. "I was that, Dad," replied Tom. "He said to me, 'Now you see this green card; you're quite sure it's green, aren't you?" The card was as red as a tomato, but I knew it wouldn't be polite to contradict, so I said 'Yes, sir,' each time. I reckon, somehow, I was too polite."



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OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

NEW SOUTH WALES

Tests with "57" Class Engines in Passenger Service

The New South Wales Government Railways recently made several interesting tests with "57" class 4-8-2 freight locomotives on passenger and fast fruit trains, to determine the adaptability of the locomotives for passenger service, and also to arrive at drawbar and horse-power figures for motive power suitable for handling heavy passenger trains on fast schedules. The first test was made on No. 179 fruit express, with a load of 14 fruit cars and a L.H.G. van, equal to 635 tons, and worked by engine No. 5719. The 128·5 miles from Enfield to Goulburn were covered in 3 hr. 58 min., including a stop of 10 min. for locomotive requirements at Bargo; the running time was 3 hr. 48 min., an average speed of 33·9 m.p.h. The net running time was 3 hr. 46 min., as compared with the schedule running time of 3 hrs., 57 mins., a gain of 11 minutes. The return trip was made the next day on No. 4*a* Melbourne express with a load of about 300 tons. The time allowed for the 137·53 miles from Goulburn to Sydney was 3 hr. 47 min., with three stops (25 min.); the running time was 3 hr. 99 min., an average speed of 40·8 m.p.h. On the down journey the running time from Picton to Mittagong was 59 min., an average speed of 29·3 m.p.h.; the 75·82 miles from Bargo to Goulburn were covered in 2 hr. 6 min. The time over the 49·21 miles from Moss Vale to Goulburn was 1 hr. 14 min., at a pass to stop average speed of 39·9 m.p.h. The third test was made with engine 5719, on No. 3 Melbourne Limited express, with a load of 11 cars of 522 tons. Various troubles were experienced on this trip, mainly due to bad firing, and the test was cancelled beyond Goulburn.

The engine and dynamometer car were worked forward to Cootamundra on the following day, and returned to Sydney the next morning on No. 2 Melbourne Limited express, with a load of 11 cars of 522 tons. On this trip the 257·27 miles from Cootamundra to Strathfield were covered in 7 hr. 5 min. 40 sec., including 3 stops (26 min. 7 sec.); the running time was 6 hr. 39 min. 33 sec., an average speed of 36·8 m.p.h. Out-of-course delays, consisting of three permanent way slacks, two signal checks, and a special stop at Moss Vale, cost about 11½ min.; the net running time is estimated at 6 hr. 28 min., representing a gain of 12 min. on the scheduled running time of 6 hr. 40 min. Speeds of 27–30 m.p.h. were sustained on the long 1 in 75 grades, and the maximum speed was permitted to reach 50 m.p.h. Starting from Moss Vale, speed rose to 48 m.p.h. in a mile from the start. Generally speaking, normal operating speeds were kept around 43–47 m.p.h. Two further tests were made on Nos. 179 and 4*a*. It was decided to repeat the down test on No. 3 express a few days later. The load was the same —11 cars, or 520 tons, worked by engine No. 5719. The 264·76 miles from Sydney to Cootamundra were covered in 7 hr. 10½ min., an average speed of 36·9 m.p.h. The net time is estimated at 7 hr. 8 min., a slight gain over the scheduled running time of 7 hr. 9 min. The 28·85 miles from Picton to Mittagong were covered in 54½ min. (booked 60 min.), giving an average speed of 31·7 m.p.h., and the express arrived at Moss Vale five minutes early. Speeds of 28–30 m.p.h. were maintained on the long 1 in 75 grades, and on the 1 in 40 grades south of Goulburn the minimum speeds were 18–20 m.p.h. The maximum speed reached on the trip was 50 m.p.h.

It is understood that as a result of the tests it will be possible to arrange an economical timetable by which the "57" class engines can handle 600-ton passenger trains on the Melbourne express workings; this would permit of stops being made at Bargo, Goulburn, and Yass Junction for locomotive purposes.

SOUTH AFRICA

Graving Dock for Cape Town

A graving dock estimated to cost £2,034,000 is to be built at Cape Town. The dimensions of the dock will be approximately 1,000 ft. long, 150 ft. wide, and 45 ft. deep. The administration held that a very large dock at Cape Town was not justified in view of the existing one at Durban, but the British Government felt that while the dock was being constructed the opportunity should be taken of building one capable of meeting exceptional requirements. As such a dock would cost probably more than the amount originally contemplated by the administration, the British Government agreed to contribute the cost (about £750,000) of all machinery and caissons, which would have to be imported in any case. The unlikelihood of being able to obtain this equipment under war conditions had been one of the administration's chief deterrents from the project. The dock will be built between the yacht harbour and the eastern mole at the Woodstock end of the new basin. The Dutch contracting firm which has been dredging and reclaiming the new harbour for the past four years has a contract to reclaim the site of the dock and this work is already well advanced. The dock will be the exclusive property of the administration and will be under its control.

New Dining Car Regulations

The administration has introduced a curtailed menu and simplified service in dining cars. This has been made necessary by increased passenger traffic, and shortage of staff. The existing *table d'hôte* service will be maintained, but the number of luncheon and dinner courses will be reduced. The practice of selling meal tickets and announcing the sittings will continue, but the doors of the dining car will be closed about five minutes after the sitting has been announced and passengers who miss the sitting for which they have been booked will have to wait for the last one.

CANADA

Increased Rates for International Transport

The Wartime Prices & Trade Board has agreed to an increase in railway rates for international transport, but domestic rates will not be affected. Included in "domestic" rates are the export and import rates on shipments between Canadian ports and inland points in Canada. Some time ago it was announced that the board had approved increases in railway rates for transportation between points in Canada and points in the United States. These increases corresponded with those agreed recently by the Interstate Commerce Commission in the United States, so that combined rates covering the carriage of goods or passengers across the international boundary will be based upon the rates of the latter. The decision not to allow increases in import rates between Canadian ports and points inland means that to some extent the price of imported goods will be beyond the control of the importer. Ships often are diverted from Canadian to United States ports on arrival from Britain, so that importers who have ordered British goods for shipment, say, *via* Halifax or St. John, N.B., may find the cost of those goods increased, due to the necessity of paying higher freight rates if the goods are landed instead at New York.

New Montreal Terminal

Work is said to be progressing on the interior of the new C.N.R. terminal at Montreal, some description of which was given in our January 16 and February 20 issues, and, as stated, the station is expected to be opened for traffic some time this year. The concourse, which measures 350 ft. by 105 ft., has a bevelled ceiling with built-in lights; executive and administrative offices are situated above the concourse. Access to the platforms, which are below the concourse, will be provided by escalators and staircases. In addition to the entrances to the station described in the previous issues, there will be a roadway, supported by steel pillars, connecting the terminal with the foot of McGill College Avenue; construction in this is proceeding.

All trains will be electrically hauled in the terminal area and will obtain current from overhead wires.

UNITED STATES

Missouri Pacific RR. Locomotive Reconstruction

An important locomotive reconstruction job is approaching completion in the Sedalia shops of the Missouri Pacific RR. The 1901 class of 2-8-4 locomotives has been rebuilt as 4-8-4s, with 6 ft. 3 in. disc drivers in place of 5 ft. 3in. coupled wheels, cast steel frames with the cylinders cast integrally, new valve-motion, longer boilers, and roller bearings throughout. The first 13 of these conversions ran 1,049,549 miles in 1941, as compared with an average of 415,584 miles annually before rebuilding, and in November alone they ran 120,857 miles, as compared with a previous average of 51,552 miles. They are at work chiefly on fast freight traffic between St. Louis and Pueblo, at the foot of the Rockies, where communication is made with the Denver & Rio Grande Western RR.

New Rolling Stock

Despite war demands, the enormous orders for rolling stock now placed with American manufacturers by the railways are being executed with commendable speed. In January of this year 8,142 new freight cars were delivered, and in February 9,262; this latter corresponded to an average of 331 daily. The March total was 9,858 cars completed. In the same three months delivery was taken by the railways of 179 new locomotives (54 more than in the corresponding period of 1941), 78 of which were steam, and 101 diesel-electric or electric. At the beginning of April the record total of about 70,000 freight cars was on order, together with 930 locomotives, 426 of which are to be steam-propelled, and 504 diesel-electric or electric—nearly three times the number (335) that was on order at the beginning of April, 1941.

Flame-Cleaning Milwaukee Rail-Joints

One of the measures initiated by the Chicago, Milwaukee, St. Paul & Pacific RR. during the past year to prolong rail and

fishplate life in view of the present difficulty in obtaining adequate supplies of new rail, has been a renewal of fishplates on important main lines, accompanied by flame-cleaning of the rail-ends. The work is at present being carried out on 130 lb. rail laid between 12 and 15 years ago on the Chicago-Milwaukee main line, which is used by a number of high speed trains, and also west of Milwaukee. Shortly after being originally laid, the rails were end-hardened *in situ*. In the re-plating, reformed head-free fishplates have been used to replace the previous straight plates; a pool of about 20,000 plates was prepared in readiness, and as the used plates were released, they were promptly picked up, re-forged, and returned to the gangs for re-use, thus providing a constant supply. Rust was first loosened by hammering and scraping the rails; then followed heating with propane torches, and finally wire-brushing. Oxy-acetylene cutting torches were adapted for use with propane, enabling a high degree of heat to be applied for a short time, sufficient to cause the rust and scale to loosen without appreciably heating the body of the steel. While the rail-ends were still warm, a coating of asphalt dissolved in a light fuel oil was applied as a preservative. The gang of 30 men, working 8 hr. a day, has cleaned and re-plated an average of 350 joints daily, and the work is still continuing.

Improving the Pennsylvania Roadbed

For some years past the Pennsylvania Railroad has been expending a considerable amount of labour on improving the roadbed of its principal main line between New York and Philadelphia, which is probably the busiest main route of its length (just over 90 miles) in the world, and carries a dense and exceptionally fast electric train service. This section passes through flat country of a swampy description, at such a low level that the water content of the soil has always given considerable difficulty in the maintenance of the track; due to uneven sleeper support, rails in particular tend to get out of surface, bending in the vertical plane to such an extent as ultimately to render them unusable well before the end of their normal life. The work on the track formation has consisted chiefly in the cutting of deep ditches parallel to the line on either side, both where the line was originally on small embankments and in cuttings, the effect being to raise the track on to an embankment throughout. According to the amount of land which it has been possible to acquire, and to the nature of the soil, the embankment slopes, and those of the adjacent cuttings have been kept down to between 1½ and 2 to 1. Close attention has been given to draining the water away from the side ditches as far as possible. The work is not yet finished; but so far as it has gone the improved condition of the roadbed has fully justified the expenditure by increasing rail life, economising in the use of other materials, and improving the riding of the trains.

BRAZIL

Viação Ferrea Federal do Leste Brasileiro

Plans have been approved for joining up the Viaçao Ferrea Federal do Leste Brasileiro with the Estrada de Ferro Nazaré between Muritiba on the former and Santo Antonio de Jesus on the latter, *via* Cruz das Almas and Afonso Pena. The proposed re-equipment of the port of Ilheus further south is being opposed by a plan to join up the Estrada de Ferro Nazaré with the railway already operating between Ilheus and Itapira. In support of the latter proposal it is pointed out that there would be no justification for spending large sums of money on the re-equipment of a port of doubtful value once Bahia is capable of handling all the export and import traffic of the state.

To join the existing lines at Santo Antonio de Jesus and Itapira would involve the construction of 190 km. of line, but would bring the municipality of Itabuna in the south into close contact with the capital and principal port of the state, and would also develop and serve the municipalities of Taperoá, Santarem, Camamú, and Valença.

Rolling Stock Purchases, 1931-1940

Imports of rolling stock by Brazil in the ten years from 1931 to 1940 are shown below :—

Year	Tons	Value Contos of Reis	Average value per ton Milreis	Percentage of total imports
1931 ...	30,266	46,142	1:525	2·45
1932 ...	18,211	14,386	790	0·95
1933 ...	63,302	37,280	589	1·72
1934 ...	102,342	76,323	746	3·05
1935 ...	91,008	135,324	1:487	3·48
1936 ...	80,080	134,036	1:674	3·14
1937 ...	124,551	249,595	2:004	4·70
1938 ...	94,252	257,162	2:728	4·95
1939 ...	97,670	197,358	2:021	4·68
1940 ...	79,261	249,346	3:146	5·02
	780,943	1,396,952	1:789	3·89

Imports in 1940 were principally from the United States and accounted for 72,249 tons, valued at 215,615 contos. Great Britain sent 4,120 tons, valued at 9,944 contos, and Belgium 1,767 tons, valued at 7,139 contos.

SWITZERLAND

Doubling the Gotthard Line

An important stage in the doubling of the Gotthard line between Brunnen and Flüelen, which hitherto has remained single track owing to the heavy engineering work involved in doubling, has been reached by the piercing, on January 10, of the last barrier in the Stutzeck-Axenberg tunnel, under the famous Axenstrasse. Work on the tunnel, which is 2 miles, 171 yd. long, was begun by the contractors Schafir & Mugglin, on May 1, 1940, at the south portal, and five days later by the Société Anonyme Hatt-Haller at the north end; the piercing has thus been accomplished just over 20 months later, at a point 1,788 yd. from the north portal and 1,903 yd. from the south. Considerable difficulties have been experienced; timbering was needed for 440 yd. through portions of the rock where schists were encountered, and severe inundations, at their worst at times of melting snow and heavy rain, made it necessary to drive a permanent subsidiary tunnel over 300 yd. long to carry the water down to the lake. The masonry lining of the tunnel is now well advanced. Incidentally, work of boring was so accurately carried out that the error on the meeting of the centre-lines proved to be no more than 28 mm. (1·10 in.) horizontally, and 3 mm. (0·12 in.) vertically.

Gornergrat Railway

For the first time on record, the Gornergrat Railway, which reaches a greater altitude entirely in the open than any other railway in Europe, was able last winter to run trains as far up as Riffelberg for the benefit of Swiss winter sports enthusiasts. Hitherto Riffelalp, at 7,260 ft. altitude, has been the limit; the extension of service to Riffelberg (8,430 ft.) has been made possible by the building of an avalanche gallery 765 yd. long over a stretch of line which apart from this protection would be completely blocked by snow. The gallery is designed on somewhat the same lines as that built recently by the Visp-Zermatt Railway between Täsch and Zermatt, to permit of uninterrupted winter working. It consists of substantial masonry and reinforced concrete construction on the inner side, and a sloping steel roof carried from this across to slender steel uprights on the outer side; in winter the outer side is timbered up to roof level, to prevent snow from being carried under the roof by high winds, but in summer the timbering is removed in order to permit an unobstructed view. The line was opened to Riffelberg for the winter service on December 20 last, but has as usual been shut down between the end of the winter and the beginning of the summer service. The Gornergrat Railway, 6 miles in length, climbs from an altitude of 5,815 ft. at Zermatt to 10,236 ft. at the upper terminus, and is operated electrically with rack-and-pinion throughout, at a maximum inclination of 1 in 5. It is under the same management as the Visp-Zermatt and Furka-Oberalp lines.

SWEDEN

Västerås Railway and the State

Negotiations for the incorporation of the Stockholm-Västerås-Bergslagen Järnvägar in the State system, which were reported in our May 29 issue to have broken down, are stated now to have been abandoned, at any rate for the time being. The company returned a working surplus for 1941 of Kr. 3,500,000, in respect of railway operation only, compared with Kr. 3,140,000 in 1940, an increase of more than 10 per cent., which was attained despite higher expenditure. The net profit was Kr. 1,110,000, compared with Kr.1,070,000 the year before. Goods traffic increased, and a larger number of passengers were carried also in spite of travel restrictions. Total receipts aggregated Kr. 3,810,000 (Kr. 3,440,000 in 1940); depreciation amounted to Kr. 1,010,100 (Kr. 1,060,000 in 1940); taxation absorbed Kr. 1,100,000 (Kr. 700,000 in 1940); and the same dividend was paid (6 per cent.) as in 1940. The balance of Kr. 1,940,000 (compared with Kr. 1,730,000 in 1940) was carried forward. Railway buildings are valued at Kr. 41,230,000 and rolling stock at Kr. 16,120,000, against Kr. 40,990,000 and Kr. 15,770,000 respectively in the preceding year; the renewal fund stands at nearly Kr. 21,000,000. Debts, including state loan and debenture loans, amounted to Kr. 13,300,000.

CEYLON

Bangadeniya-Puttalam Line

Only one goods train in each direction runs between Bangadeniya and Puttalam, and a third class brake is attached to these trains so that a limited number of passengers may be carried. Speed is restricted to about 5 m.p.h. on this line, which, the authorities consider, has not been kept up to the standard required for passenger train running.

Reduced Speeds

The speed of trains on the coast line is being reduced this year. The first section affected is that between Colombo and Panadura, on which more passenger trains are run than on any other section, and the maximum speed is being reduced from 35 to 25 m.p.h.

XUM

Intermediate Signalling in the Severn Tunnel

Provided on both lines to improve operation of heavy traffic

THE signalling of a long tunnel, particularly one used with steam traction, always presents special difficulties. If it is treated as one block section the restrictive influence on traffic may be considerable, and the establishment of intermediate signalling sections often involves the solving of numerous technical and operating problems. The atmospheric conditions arising from steam traction make it extremely difficult at times to see signals and the danger of over-running is, of course, itself greatly increased by tunnel conditions. In addition, any apparatus located in the tunnel is subject to corrosion and functions at much disadvantage. Inspection and maintenance are also not easily effected. With electric traction, of course, conditions are easier. In the case of some long electrically worked tunnels abroad signal boxes have been placed inside. The 12-mile Simplon Tunnel, opened first as a single line, had a passing place and signal box in the centre and when the second tunnel was opened it became an ordinary block post. Later, however, wheel-counting apparatus was put in—steel sleepers making track circuit impracticable—and the signal box kept for emergency working only. Wheel counting has been applied also in the Hauenstein (Lower) Tunnel. The Appenine Tunnel in Italy has an intermediate signal box. The Hoosac Tunnel, U.S.A., also electrically worked, has automatic signalling, and there are intermediate signals in the Tanna Tunnel in Japan.

Investigation shows that the Severn Tunnel, which is 4 m. 628 yd. long, presents unique operating and signalling problems. The traffic is much heavier than in tunnels of similar length elsewhere. It is steam worked and there is a falling gradient of 1 in 100 on the eastern and 1 in 90 on the western side, connected by a level length of only 264 yd. near the centre. Clearances make it impossible to provide against breakaways and sufficient distance must be given beyond any stop signal on the falling gradient to allow a train to gain impetus for the subsequent ascent. The intermediate signals, therefore, had to be put one mile from the entrances, not the ideal point from an operating or atmospheric point of view, as dirt, smoke, fumes, and water are prevalent. As it is imperative that a driver shall be able to locate the intermediate signals under the worst conditions they were duplicated by repeater signals 200 yd. in rear and A.T.C. ramps provided at both. The A.T.C. apparatus greatly increases the safety of the arrangement. Preliminary experiments enabled the problem of working track circuits in the bad conditions obtaining to be solved satisfactorily. As much of the equipment as possible was located outside the tunnel; special housing was provided for the remainder.

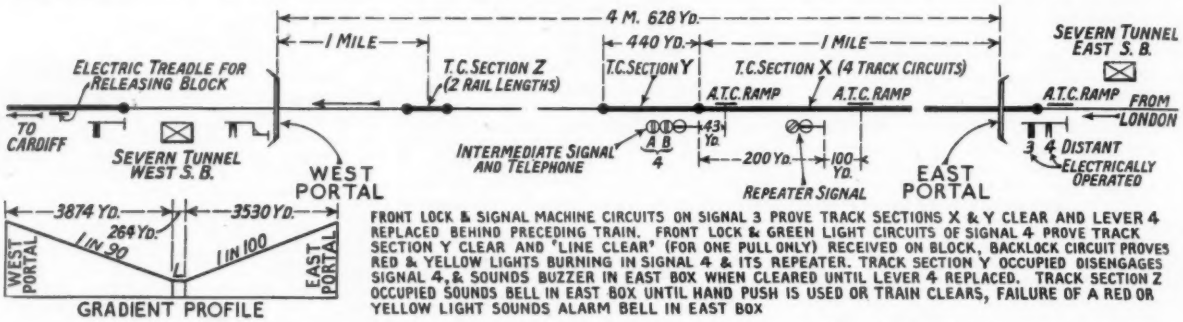
Advance Section Signalling

The advance section method of operation, which the G.W.R. made use of in its first intermediate block-signalling installations in 1907, has been adopted and the signalling on both lines is identical. The down-line signalling is shown on the accompanying diagram. The intermediate stop signal inside the tunnel consists of two red and one green colour-light units; both red units burn normally, with a yellow and green repeater light signal in rear. The semaphore starting signal, which in the down direction is 72 yd. and in the up direction 100 yd. outside the tunnel, has been changed to electric operation and provided with a distant arm beneath it, also electrically operated, repeating the intermediate stop signal. Track circuit, formed of four separate sections operating on the cut-section principle, is provided between the starting and intermediate signals, with a 440 yd. overlap track circuit beyond the latter. The semaphore distant signal has the usual A.T.C. ramp just in advance of it—the arrangement adopted when a distant arm has a stop arm above—and a second ramp is 100 yd. in rear of the colour-light repeater signal. A third ramp, not at first provided, is situated about 40 yd. in rear of the intermediate signal, as an additional aid to drivers in observing the latter and represents the application of A.T.C. to a stop signal, not usual on the G.W.R. About a mile from the exit to the tunnel an open circuit track circuit, two rails long, serves to ring a bell at the signal box in rear and to indicate that the receding train is negotiating the ascending gradient. Telephones, communicating with the box in rear, are placed at the intermediate signals and all signal lights are, of course, constantly repeated therein also. Lock-and-block has been in force through the tunnel for many years, using a special form of Spagnoletti disc block-telegraph instrument, designed at Reading Signal Works, with controlled cancellation. The block release treadle is placed on the track circuit between the home and starting signals at the box in advance. The ordinary distant signals at the approach to the tunnel are now electrically operated and controlled by the arms of the relative starting signals.

The Control Circuits

The control circuits are arranged to meet the requirements now generally considered essential for intermediate signalling, with some additional features introduced on account of the working being in tunnel. The starting signal lever is electrically front locked and proves the track circuit sections unoccupied to the overlap point and the replacement of the intermediate signal lever behind the preceding train. The same control is applied to the signal machine circuit. The lever working the intermediate signal is both front and back locked. The front lock circuit proves "line clear" received on the block and the overlap track circuit unoccupied. The pulling of the lever de-energises the block "resetter," as it is termed on the G.W.R., necessitating the proper operation of the block to pass the train forward and a second "line clear" signal before the front lock can be freed again. The backlock on the lever is freed provided that the red and yellow lights become correctly illuminated in the intermediate signal and its repeater signal when the lever is moved from reverse. As the intermediate signal is "disengaged" when a train passes, necessitating the replacement to normal of its lever to remove the stick relay effect, which in turn requires the overlap track circuit to be clear, and the control over the starting signal is taken over this stick relay, the latter signal effectively proves the intermediate signals burning and the line unoccupied up to the overlap point.

The red lamps in the intermediate signal are proved by series relays of the track circuit type, heavily shunted. These reciprocally control resistances normally included in each circuit, both of which are fed at 24 volts and include another constant resistance; the whole is adjusted to give 9·5 volts at the signal lamp, which is 12 volt, 12 watt. If one of the red lamps fails its repeating relay short circuits the resistance in the circuit of the other lamp, so that the voltage on it rises to 10·5 (there is a momentary surge of not more than 12 volts) and it is then able to give an indication approximately as strong as the two units burning together gave. The green lamp, and the yellow and green lamps in the repeater signal, are proved and repeated directly; the resistance of their circuits has a fixed


4 M. 628 YD.
1 MILE
440 YD.
1 MILE
ELECTRIC TREADLE FOR RELEASING BLOCK
T.C. SECTION Z (2 RAIL LENGTHS)
T.C. SECTION Y
T.C. SECTION X (4 TRACK CIRCUITS)
A.T.C. RAMP
A.T.C. RAMP
A.T.C. RAMP FROM LONDON
SEVERN TUNNEL EAST S. B.
TO CARDIFF
SEVERN TUNNEL WEST S. B.
WEST PORTAL
INTERMEDIATE SIGNAL AND TELEPHONE
A B 4
43 Yd.
200 Yd.
100 Yd.
REPEATER SIGNAL
EAST PORTAL
3 4 DISTANT ELECTRICALLY OPERATED
3874 YD.
264 Yd.
3530 YD.
1 IN 90
1 IN 100
WEST PORTAL
EAST PORTAL
GRADIENT PROFILE
FRONT LOCK & SIGNAL MACHINE CIRCUITS ON SIGNAL 3 PROVE TRACK SECTIONS X & Y CLEAR AND LEVER 4 REPLACED BEHIND PRECEDING TRAIN. FRONT LOCK & GREEN LIGHT CIRCUITS OF SIGNAL 4 PROVE TRACK SECTION Y CLEAR AND 'LINE CLEAR' (FOR ONE PULL ONLY) RECEIVED ON BLOCK. BACKLOCK CIRCUIT PROVES RED & YELLOW LIGHTS BURNING IN SIGNAL 4 & ITS REPEATER. TRACK SECTION Y OCCUPIED DISENGAGES SIGNAL 4, & SOUNDS BUZZER IN EAST BOX WHEN CLEARED UNTIL LEVER 4 REPLACED. TRACK SECTION Z OCCUPIED SOUNDS BELL IN EAST BOX UNTIL HAND PUSH IS USED OR TRAIN CLEARS, FAILURE OF A RED OR YELLOW LIGHT SOUNDS ALARM BELL IN EAST BOX

General arrangement of intermediate signalling in the Severn Tunnel, G.W.R.

value. A trickle-charged 24-volt battery is used for these circuits as the lamps have to operate over line and return wires one mile in length and there is consequently considerable voltage drop.

The track circuits are each fed from one nickel-cadmium trickle-charged accumulator, and a set of such cells, similarly charged, provides power at the overlap track circuit for repeating its track relay and that of the open-type track circuit on the adjacent line for the opposite direction of traffic. The trickle charging is done from 33-volt a.c. mains. Six cables, impregnated paper, lead covered, and armoured, were installed at each end of the installation, controlling separately the intermediate signal, the repeater signal, the A.T.C. ramps, and the track repeater circuits, as well as carrying the a.c. feed and the circuits to the enginemen's and signal maintainers' telephones.

No new cable was run, however, through the centre of the tunnel and the two-rail track circuit on the rising gradient in each direction is therefore repeated forward into the box in advance and thence over a wire in the ordinary telegraph cable to the box in rear. The track relays are wound to 1 ohm and ballast resistance averages rather under 1 ohm; the drop shunt is approximately 0·25 ohm. The usual G.W.R. fang-bolt chair fastenings have been replaced throughout the track circuited sections by coach screws. The A.T.C. ramps of course when energised prove the relative signal arms off, or green lamps burning, and levers fully reversed. The electric signal machines are fed from trickle-charged accumulators. The apparatus cases in the tunnel are of teak, protected by a heavy coating of marine glue; this was found the most satisfactory arrangement in such unfavourable atmospheric conditions, and had to be specially designed to go in the rather small manholes available and yet leave adequate space for a man to stand there.

If either red lamp in the intermediate signal or the yellow lamp in the repeater burns out, an alarm bell is set ringing in the controlling signal box. When a departing train clears the overlap track circuit a buzzer sounds until the lever of the intermediate signal is replaced to normal. When the train reaches the 2-rail track circuit one mile from the exit to the tunnel a bell is set ringing, but this can be stopped by pressing a push.

The effect on freight train working is to give a margin of 6 min. and the advantage of the intermediate signalling has increased as other new works and traffic control arrangements affecting the route have been brought into operation.

Operating Rules

The driver of any engine not provided with A.T.C. apparatus, or on which the apparatus is not in proper working order must, unless a Severn Tunnel or other assistant engine fitted with such apparatus in working order is attached in front, bring his train to a stand at the signal box controlling the entrance to the tunnel and duly advise the signalman, who must obtain "line clear" for the train before allowing it to proceed. All Severn tunnel assistant engines must be fitted with A.T.C. apparatus. No diesel car may enter the tunnel unless "line clear" has been received for it. Should a train be brought to a stand at an intermediate signal and the fireman finds he cannot establish communication by means of the telephone there, he is required to proceed to one of the ordinary tunnel telephones in the vicinity, but if they also prove to be out of order he must inform his guard, who must proceed to the signal box in rear for instructions, at the same time protecting the train in accordance with Rule 179.

The whole of this interesting work was designed and installed by the staff of the Signal Engineer, G.W.R., Mr. F. H. D. Page, to whose courtesy we are indebted for the information on which this article is based.

Transport Workers in United Nations Parade

RAILWAYMEN and other transport workers formed part of the procession of some 2,500 persons who marched from Buckingham Gate, through the Mall, and before Buckingham Palace on Sunday last, United Nations Day. The procession marched past the King and Queen, who, with the Princesses and the King of Norway, the King of Jugoslavia, and the Presidents of Poland and Czechoslovakia, were on a dais outside the Palace. The procession was about half-a-mile long, and in it were carried the flags of twenty-two peoples allied with the British Commonwealth; among those who marched were representatives of all sections of the Armed and Civil Defence Services, and of workers in war industries.

The Minister of War Transport, Lord Leathers, was present at Buckingham Gate when the transport workers contingent formed up for the march and spoke to members of the Merchant Navy section and to representatives of the railway workers and dockers. Lady Leathers met a number of women workers in the transport industries.

Representatives of transport workers in the United Nations Day procession during the ceremony held on Sunday last marching past the King outside Buckingham Palace

XUM

Railway Managements and Locomotive Engineering

A Criticism and a Reply

UNDER the heading of "Chemical Engineering for Transport: Scientific Methods for Railways" our contemporary, *Chemistry & Industry*, published in a recent issue an article which constitutes an attack on railway managements and locomotive engineers for lack of vision in the development of mechanical means of transport. The standard steam locomotive, in capacity up to, say, 3,000 h.p., and a speed of 75 m.p.h., is described as a "grotesque contrivance" consisting in general of a hand-fired boiler operating at a, low or medium pressure, not over 300-325 lb. per sq. in., and a low superheated steam temperature, say, 650° F. (343° C.) or under, with a non-condensing reciprocating steam engine. The average net thermal efficiency is 6-8 per cent., that is, with a yearly consumption of 200,000,000 tons of coal, about 185,000,000 tons are wasted. It is suggested that chemical engineers and fuel technologists should be called in to assist in designing steam locomotives to meet modern requirements.

The use of much higher steam pressures and temperatures of superheat and the condensing steam turbine instead of the non-condensing engine are advocated, as also are very high pressure, natural circulation, water-tube boilers, with coal firing and superheaters, operating at 500-1,500 lb. per sq. in. pressure and 800-900° F. (427-482° C.) superheat. In addition there are available the latest designs of light-weight, forced circulation, super-pressure steam generators, such as the "Benson," "La Mont," "Loeffler," "Ramsin," "Sulzer," and "Velox," which are ideal for locomotive practice.

Turbines and Other Alternatives

There is, it is stated, no technical or commercial reason why condensing steam turbines with gear or turbo-electric drive should not be used for locomotives, utilising air-cooled condensers. Steam turbine locomotives, often with super-pressure steam generators, have been designed, constructed, and operated in a number of countries, during recent years, giving say 14-17½ per cent. thermal efficiency; this represents about one-third of the coal consumption of the ordinary locomotive. Railway managements, however, throughout the world, it is contended, have almost invariably refused to adopt such a thermally-efficient method, just as they have fought against every primary advance, such as steam heating for coaches, lavatories on trains, electric lighting, superheated steam, dining cars, sleeping cars, corridor coaches, and steel coaches, to mention only a few examples. There are various methods also, already constituting standard practice in stationary land boiler plant, that represent possibilities of economy for the locomotive, such as mechanical stoking, pulverised coal firing, and the use of scientific instruments of control, including combustion records and pyrometers.

The steam locomotive is described as a small, self-contained power station on wheels, with its own steam-generating plant and engine with direct drive, and carrying its own store of fuel and boiler feed-water. The ideal is for this small power station to be on the same efficient lines as stationary land plants, with high steam pressures and temperatures of superheat, high steam-generating efficiency, and condensing steam turbine with air-cooled condensers, the recovered water being returned to the boiler, thus reducing enormously the weight of water that has to be carried. Railway management in Great Britain is criticised for lack of scientific methods in that the country even now does not possess a single modern locomotive-testing plant on which the largest units can be operated at full speed, with the drive diverted on the roller principle, so that the locomotive remains stationary. Consequently, if a British railway desired to test the performance of a locomotive on efficient and scientific lines, it has had to be sent abroad for the purpose, say, to France or Germany.

Steam-Electric and Diesel-Electric Trains

There is, according to the writer of the article, no reason why high pressure water-tube boilers for "steam-electric" locomotives should not be operated with coal firing, using either mechanical stoking or pulverised fuel equipment. Steam turbine-electric super-speed trains of this type have followed the remarkable development in the United States of the long distance, super-speed, diesel-electric, streamlined train, representing a desperate attempt of the more efficient railway companies, already badly hit by motor road traffic, to fight the commercial aeroplane.

The special lightweight coaches used for these trains almost entirely constructed of stainless steel or special high-tensile low-alloy steels, welded throughout, and with small wheels and streamlined construction, are contrasted with the ordinarily used riveted steel coaches, "with large wheels and no regard for wind resistance."

The combustion gas turbine locomotive is put forward as one of the latest possibilities for much more efficient operation of locomotives using a fuel-fired combustion chamber. There is, it is urged, ample scope for an enormous improvement in the coal-fired steam locomotive in competition with the diesel and the electric locomotive.

The article concludes by stating that although, as already indicated, the position of the steam and the electric locomotive continues to change, partly because of the activities of the chemical engineer, railway managements do not change in mental outlook at anything approaching the same speed. For this reason alone rail transport has for many years been in steady decline as to the percentage of the world's total passenger and freight traffic handled.

Reply from the Railway Viewpoint

Even the foregoing much-abridged survey of the article referred to suffices to show that the railway managements are belaboured for not having adopted every new development in other industries, without regard to such vital matters as economics or practicability. The article was presumably written before Mr. Stanier's Presidential address to the Institution of Mechanical Engineers was published, as the facts set out therein contradict the points raised at almost every stage. Shorn of much of its trimming, the main criticism is that the railways are using reciprocating non-condensing locomotives of 6-8 per cent. thermal efficiency instead of high-pressure high-temperature turbine condensing locomotives of up to 20 per cent. thermal efficiency, and the author in his arguments has seemingly confused non-attainment of high thermal efficiencies by locomotive engineers with a lack of any wish to achieve them, whereas nothing could, of course, be further from the truth. All engineers strive for them unceasingly, and will always unhesitatingly adopt means to obtain them provided the fuel saving so obtained is not, all of it, swallowed by high operating and maintenance costs, capital charges, or unreliable performance, and in this proviso lies the controlling factor which the author ignores.

First as to performance; railway traction involves continually varying conditions of speed, load, and running resistance which preclude any prime mover from operating continuously at its point of highest efficiency. It offers restrictions of length, width, and height, also of weight both in distribution and total amount. Finally, in its capacity as a vehicle running on a track resting on elastic foundations, it produces vibrations and disturbances which are inimical to any but the simplest and most robust form of construction. Numerous attempts have been made over thirty years to produce a reliable turbo-condensing locomotive, but so far they have failed on some or all of the following points:—

(1) Insufficient boiler capacity due to weight limitation, to meet increased steam demands due to fall in vacuum.

(2) Loss of efficiency due to vacuum failures arising from insufficient cooling surface and fan capacity. These again are due to limitations of allowable weight and space.

(3) Unreliability and unresponsiveness of draught fan which replaces normal locomotive blast pipe.

(4) Unreliability of auxiliary apparatus not sufficiently robust to stand up to vibrations while running.

The latest example is the General Electric Company's locomotive on the Union Pacific Railway in U.S.A. This may have succeeded at last in overcoming all the defects of its predecessors, but no information has so far been released although the engine has been in existence for some time. The position therefore is that, in spite of numerous attempts, there does not exist anywhere in the world a turbo-condensing locomotive of demonstrated and proven reliability, and this notwithstanding the railways are criticised for not adopting it wholesale. Granted, however, that such an engine could be produced to give reliable performance—as is possible after further development work—even if a substantial economy in consumption of coal were obtained—this would only produce a moderate saving in the coal proportion of the total cost of maintaining and running of locomotives, which is the thing that matters most.

It is unlikely, therefore, that the highly complicated turbine condensing locomotive could justify its general adoption on the strength of improved thermal efficiency alone, because the capital and upkeep charges on the increased first

cost may more than swallow up the actual saving in money.

Claims of the Diesel Locomotive

Diesel locomotives do not rest their principal claim for adoption on thermal efficiency, and diesel shunting engines in use in this country can be cited whose operating characteristics and availability are the factors which have made them preferable for certain important classes of shunting work; similarly with the high-powered passenger diesel-engined locomotives in use in America, it is the high mileages which they are capable of running which provides their justification in suitable circumstances.

Even if money is not the criterion, but a desire in the national interest to save coal as coal—an important point at the present time—it is by no means certain that the introduction of such units would be the most fruitful way of saving coal in bulk.

A calculation based on the annual consumption of the British railways, something of the order of fifteen million tons, will show that considerably less is to be saved by the introduction of 1,000 turbine units having 20 per cent. thermal efficiency than by raising that of the whole of the stock of locomotives by 1 per cent., namely from 7 to 8 per cent., and this latter course is being steadily proceeded with as a matter of normal policy.

Altoona Test Plant

Railway managements are by no means blind to what is going on in the world, and the locomotive is admittedly capable of much further development, but, so long as railway mechanical engineers must strive to obtain the best tractive effort and speed characteristics in their prime movers at the lowest possible cost, they cannot adopt new designs without considering such facts as the above, however exasperating they may be to railway critics.

Replies to individual points raised in the article are as follow:—

(1) "Railway operation has obviously never been considered by those in authority from the chemical engineering and fuel technology points of view. The trouble is that railway managements do not change in mental outlook to keep pace with steam and electric locomotive possibilities, partly arising from the activities of the chemical engineer."

The history of the railway research departments since 1928 refutes this.

(2) "Engineers and fuel technologists have repeatedly pointed out that the locomotive should follow power station practice but until recently nothing has been done."

In this connection attention may be drawn to the following:—

Reid Ramsay turbo-electric condensing locomotive	1913
Ramsay turbo-electric condensing locomotive	1923
Reid Macleod turbo-electric condensing locomotive	1924
Beyer, Peacock Ljungström turbo condensing locomotive ..	1927
Kitson-Still Steam I.C. locomotive	1927

(3) "Hardly anything is known of locomotive boiler efficiency."

The subject is very thoroughly known and is being continually explored, as witness the work of Lawford Fry and the Altoona Test Plant.

(4) "This country does not possess a single modern locomotive testing plant."

In reply to this it may be stated that the plant, designed and partly built for the British railways, the completion of which has been prevented by war conditions, will be among the most highly equipped plants in the world. In addition mobile testing plants have been designed and used.

(5) High Pressure Boilers.

Schmidt, Henschel, and Yarrow types have been tried in this country on locomotives and "Le Mont," "Loeffler," "Sulzer," and "Velox" abroad.

The Loeffler boiler in particular has been quite unsuccessful in its application to a locomotive in Germany, and if the author made some inquiries of certain users of the boiler in this country for power station work he might be less ready to propose hundreds of them for use on railways.

(6) It is suggested at one point in the article that the electric-supply industry has failed in connection with making use of the low-grade heat represented by the condenser loss in power stations. The author has evidently not investigated the cost of such a step and he appears to confuse that loss somewhat with the loss from the heat content of the existing steam which is almost non-existent in a well-designed power station. Moreover, railway power stations do, as a matter of fact, use existing steam for heating process work when it is economical to do so. For example, one of the railway works in this country has for some years been supplied with steam from the power house which is utilised to heat low pressure steam returned from the works which in turn is used in mixed turbines to generate electricity.

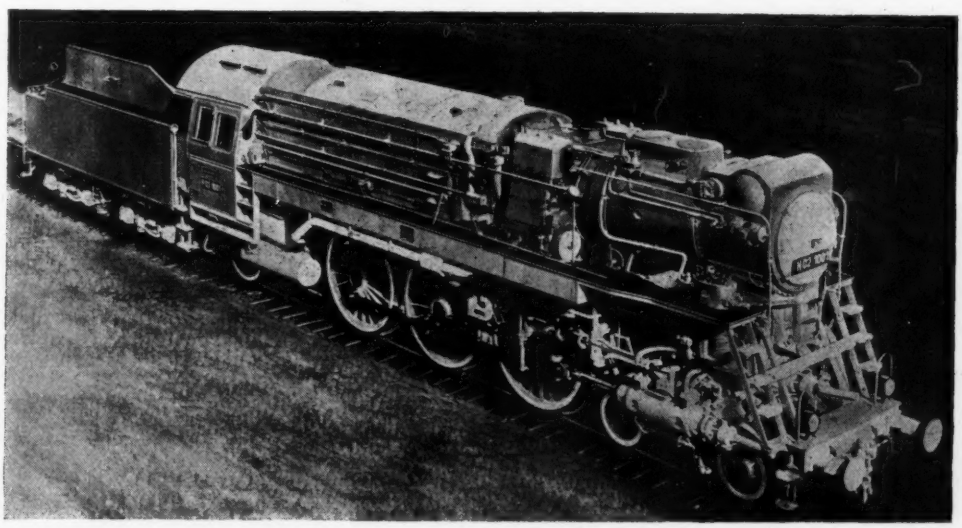
(7) Some of the disadvantages to railway transport are mentioned as against road and air transport, but the outstanding basic advantage of railway transport is ignored, namely, the very low expenditure of heat unts per ton-mile required in comparison with the road and still more in comparison with air transport, arising, of course, from the very low rolling resistances in the case of the former.

(8) Considerable space is devoted in the article to mechanical stokers and gas turbines, but the author is by no means clear as to his conclusions in regard to these two developments.

Conclusion

The services of chemical engineers and fuel technologists have undoubtedly played a considerable and important part in industrial developments including that of mechanical transport, but it must be left to the judgment, based as it is on long experience and research of the railway companies through their chief mechanical engineers as to what in practice constitute the most efficient, economical, and financially sound methods where the design and operation of the prime movers employed for railway transport are concerned.

The history of the design of locomotives and vehicles in this country has shown that mechanical engineers in and outside the railways have been continuously directing their minds to *all* the relevant things which affect the efficiency of railway equipment. In so doing they have had the full support of the railway managements in both experimental and constructive work. The only test as to the latter is the "all-in" cost in relation to performance.



"The Loeffler boiler in particular has been quite unsuccessful in its application to a locomotive in Germany." (See above). The engine, thus fitted, is here illustrated

The Work of the Railway Clearing House

I—The Traffic Department

DURING the period of one hundred years since the establishment of the Railway Clearing House, at first a voluntary association with no legal standing, the work of this important but little-known body has increased enormously in both extent and kind. The centenary of the Railway Clearing House fell on January 2 of the present year and a simple ceremony* held at that time to mark this important British railway landmark resulted in public interest being directed to the organisation in a way which is unusual in normal circumstances, and most of the attention was naturally paid to the origin of the Railway Clearing House as an organisation for the accurate apportionment between the railway companies concerned of the fares and charges paid for through bookings of passengers and goods from one system to another.

In the early days of railways, intensive competition prevailed between one company and another operating in common areas and there is little doubt that some companies adopted devious ways of attracting business, much of which resulted in wasted effort. As time progressed the companies found it more desirable to discuss problems round the conference table, and the R.C.H. became useful in providing a neutral ground where the executive officers of the different lines could meet and discuss the various matters connected with railway management. Railway Clearing House meetings have since become a recognised institution throughout the railway industry, by the many trading interests of the country, and by the various Government departments. The R.C.H. has provided the needful secretariat for all the various and numerous conferences, which in 1939 totalled nearly 2,000.

Despite the variety of its work, the activities of the Railway Clearing House may be divided into two broad categories, one the Traffic Department and the other the Secretarial Department, and it is the object of the present article to outline briefly the work of the Traffic Department. It is hardly necessary to state that the procedure described is that which was in use up to September, 1939; since then the main-line railways have been under Government control. This department deals with the clearing by the R.C.H. of the accounts of railway companies with one another, and is divided into two main sections, namely Coaching and Merchandise. Throughout the past century the Coaching and Merchandise sections of the Traffic Department have adhered most closely to the primary purpose for which the railway clearing system was originally established, namely:—

(1) To enable passengers to book through from one company's station to those of other companies, and to facilitate merchandise of all types and livestock being booked through and carried without necessarily being either shifted or re-assorted.

(2) To apportion correctly between the companies concerned the charges paid for all such conveyance.

The Merchandise Section

In the Merchandise Section of the Traffic Department the work relates mainly to the clearance of charges in respect of goods, minerals (except coal), and livestock conveyed over two or more railways or joint lines. Charges on coal class traffic were at one time settled by the R.C.H., but for some considerable time past other means have been employed.

The initial step taken by the Clearing House in dividing receipts is to ensure that all the invoiced charges for merchandise passing over the systems of two or more companies are correctly accounted for at both terminal points, that is, by verifying that the accounts of the forwarding and receiving stations contain confirmatory particulars. Both station agents, therefore, have to send to the Clearing House at the close of every month a summary of the quantities of through traffic arising at or terminating at their stations or depots, together with details of the charges raised. The R.C.H. staff checks the data furnished, locates any differences between the two sets of returns, and, by correspondence with the railway agents, disposes of any discrepancies. In the rare cases where an agreement with the agents cannot be reached, the Clearing House refers the question to the audit offices of the respective companies. By this means not only are reliable data obtained for the division of the receipts between the companies concerned, but a check is also placed upon the accuracy of the station accounts relating to "foreign" traffic.

After the close of every month's operations, the station summaries are forwarded to the respective audit offices, together with particulars of any alterations or additions affecting the company's own cash which have been brought to light in the course of the Clearing House check. In this way, the companies are enabled to follow the original amounts to account and also to see that all the subsequent corrections have been duly included in the station returns to headquarters. The checked station returns afford the data for dividing the receipts. The broad method of doing this is to credit the terminal companies with fixed amounts according to the class of merchandise concerned, and for collection and/or delivery services if these are included in the charges, and the balance is apportioned on mileage, according to the distance carried over the respective railways. There are numerous exceptions to this standard principle, such as divisions in agreed proportions, fixed tonnage tolls, and percentage allotments, many of which embrace both terminal and mileage interests.

To minimise the labour of making these divisions between the numerous forwarding and receiving stations, *via* every one of the several routes used, the various transactions are divided into two parts, designated "heavy" and "light" respectively. The "light" items are dealt with in bulk, and not individually. The heavy items are divided in detail every half year, but every month interim results are compiled in favour of the interested companies. This is done by estimates based on past experience, and payments are made on account. The interim results are adjusted when the final division is made at the end of the half-year. In the case of the bulk settlement of the smaller amounts under the "light" arrangement, the unit of division is not the total receipts for a pair of stations by each route, as in the case of "heavy" items, but the total receipts for a pair of companies. A percentage deduction is first made from such receipts in respect of terminal charges, and the remainder (called the "light fund") is divided half-yearly on an agreed basis built up on tests. The "light" items represent nearly 90 per cent. of the total through merchandise transactions between pairs of stations. As the totals approximate 6,000,000 a year, the bulk settlement of "light" items effects considerable savings in work.

In addition to the ordinary division of merchandise traffic receipts, the Clearing House is required to give effect in certain cases to special agreements and pooling arrangements involving the re-division of the amounts already appearing on the ordinary settlements.

There are also various extraneous matters connected with the traffic settlements, such as bad debts and claims, *i.e.* compensation payments for loss or damage of, or delay to, goods consigned by rail.

Balances are notified to the various companies. The debtor companies, namely, those holding cash in excess of the proportions due to them, pay the difference to the Clearing House, which distributes this payment among the creditor companies.

The Passenger Section

So far as passenger fares of all kinds are concerned, the principle on which the receipts are divided differs from that which obtains in the case of other traffics, in that the Clearing House deals only with the proportions of the non-booking company or companies on particulars supplied by the booking company, subject to test by means of collected tickets. For Clearing House purposes, passenger traffic is divided into two main categories, namely, "two companies" and "three companies," and, under each of these heads, ordinary (including monthly, tourist, etc. tickets) and excursion bookings are dealt with separately.

The booking company's returns of both "two" and "three" companies' passenger traffic are received monthly from the audit offices of the railway companies. The returns show "pairs of stations," "route," "commencing and closing number of tickets," "issue," "throughout fare," and "gross receipts." In the case of any bookings where the gross receipts between a pair of stations for one month are relatively small they are returned as "light," other bookings are called "heavy."

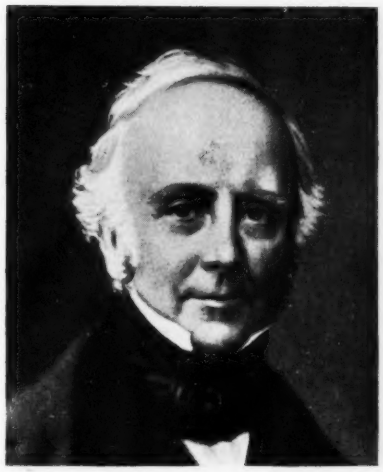
In the case of "two companies" heavy traffic, that is, traffic in which only two companies or joint lines are interested, the booking company shows particulars of the booking, and also the other company's proportion of the receipts. This proportion is credited by the Clearing House to the company to which it is due and debited to the booking company. The booking company's returns are sent forward to the non-booking companies, thus obviating the necessity of preparing detailed statements.

"Three companies" heavy traffic, *i.e.*, traffic in which three or more companies or joint lines are interested, is similarly returned by the booking company, but the proportions of the other companies are not shown, and the apportionment is

* See our issue of January 2, 1942, pages 29-32

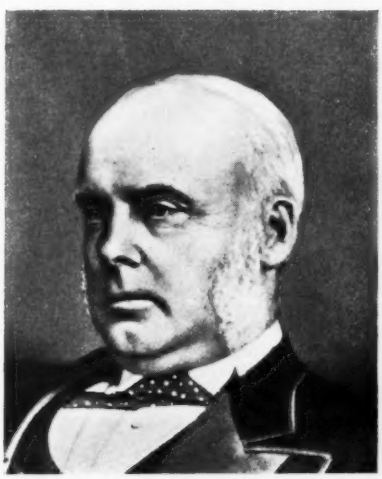
Chairmen of the Railway Clearing House

(Showing their periods of occupation of the Chair)

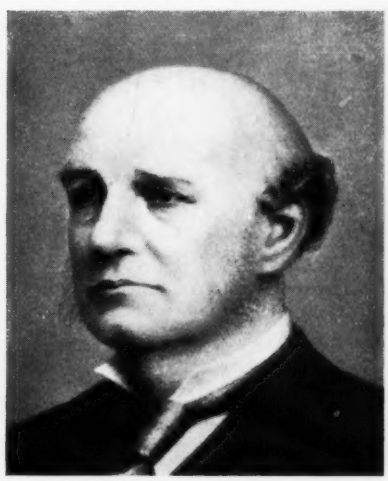


George Carr Glyn
(afterwards first *Baron Wolverton*)
1842-1873

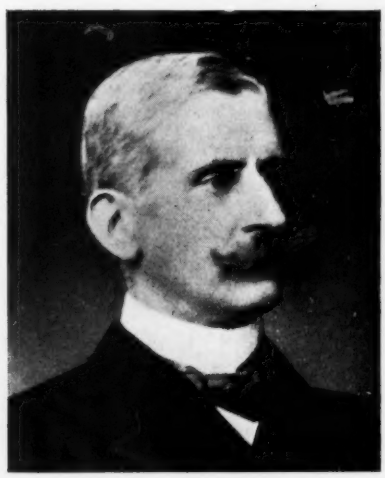
Rober Benson
1874



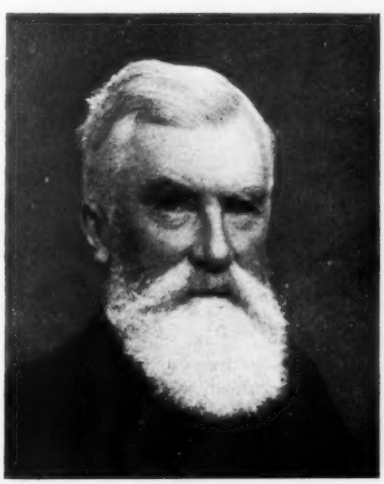
George Grenfell Glyn
(second *Baron Wolverton*)
1875-1885



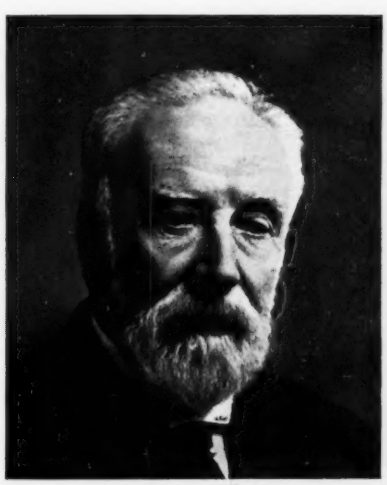
Oscar Leslie Stephen
1886-1895



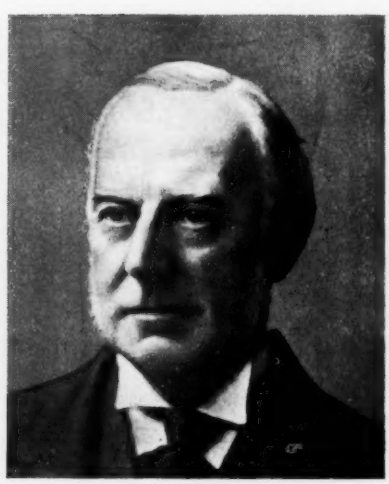
Lord Claude John Hamilton
1896-1906



Theodore Julius Hare
1907



Sir Leslie Charles Probyn
1907



Charles Mortimer
1908-1914

Hugh Wyndham Luttrell Harford
1915–1917

Sir Edmund Russborough Turton, Bt.
1918–*May*, 1929

Sir Francis Henry Dent, C.V.O.
June*, 1929, *to date

made by the Clearing House in accordance with the mode of division agreed by the companies concerned. Here again the receipts are only divided among the non-booking companies, the booking company retaining its own proportion. The reason for this is that the cash is always in the possession of the booking company.

The usual mode of division is by mileage, and the monthly calculations are made for each pair of booking points where the gross receipts come under the description "heavy." Where the gross receipts from one station or booking office to one other station by one route in one month come under the "light" designation, apportionments are made in bulk in ratio to actual divisions of similar "light" traffic receipts in an earlier, but recent, tested period.

All the paper and blank card tickets collected (for both "two" and "three" companies) are sent to the Clearing House and checked individually, but in the case of issues from the regular printed card series of "three companies" tickets, the last serial number of each issue, taken from selected collections every month, is checked against the passenger returns, each company covering the whole of its stations by the selected collections during twelve months. The Clearing House also imposes a "continuity" check monthly by reference to the commencing and closing numbers on the returns in those cases where the highest numbers are not sent (this "continuity" check was dispensed with in 1939). The check of the regular series of "two companies" printed card tickets is made in the audit offices of the railway companies.

The Clearing House does not now furnish all the creditor companies with statements showing the full details of the "heavy" bookings in which they are interested, together with their earnings thereon, although this method was at one time in use. Generally, the companies now accept the Clearing House balances without any supporting details, but the data are retained by the R.C.H. for a reasonable time so that any company can inspect the details if it wishes, and satisfy itself as to the accuracy of the accounts.

Miscellaneous Traffic by Passenger Train

Miscellaneous traffic by passenger train consists of traffic charged by weight in quantities of 2 cwt. and upwards, as well as horses, carriages, dogs, milk, etc. The method employed in the division of receipts of miscellaneous traffic is broadly the same as that adopted for merchandise traffic.

Parcels Traffic

Up to the year 1915, parcels traffic was dealt with in a similar manner to miscellaneous traffic, waybills (or invoices) being issued for every consignment and the traffic abstracted by the station agents on forms which also contained the miscellaneous traffic. As from July 1, 1915, with few exceptions, waybills have not been issued for parcels traffic, *i.e.*, relatively small packages, which can usually be carried in a guard's van, not covered by the generic term merchandise traffic. This is made possible by the use of adhesive value stamps affixed to every parcel by the forwarding station.

The whole of the receipts of the various railway companies from parcels are divided *en bloc* on actual experience of the revenue as apportioned to the several companies for this class of merchandise for selected periods, applied in ratio to the current month's number of parcels conveyed to the number of parcels in a selected period. As it is essential that the numbers of parcels should be recorded accurately by the station agents, in view of the predominant part the correct numbers play in the allocation of the parcels receipts, examiners from the Clearing House visit the audit offices and the stations periodically to test the accuracy of the compilation of the figures rendered.

Parcel Post

Prior to 1882, the railway companies had practically the monopoly of parcel traffic, but in that year the Post Office (Parcels) Act, 1882, was passed and, in the month of August, 1883, the Post Office entered into the parcel business. Notwithstanding that the Post Offices were prepared to accept these parcels from the public, the Postmaster-General was, to a very large extent, dependent upon the railways for the conveyance of the parcels from one town to another. It was therefore enacted that the Postmaster-General should pay the Railway Clearing House, every quarter, on behalf of the companies, an agreed percentage of the gross receipts collected by the Post Office in respect of such parcels as were conveyed by railway.

At one time, the Post Office recorded the numbers of every parcel posted, the amount of postage, and whether conveyed by rail or road, but in recent years these details have been superseded by a record for typical periods in every half-year. The periods are selected by agreement between the Post Office authorities and the Railway Clearing House acting on behalf of the railway companies. The average postage of a parcel, and the percentage of rail and road-borne parcels, as shown on these records, form the basis on which the railway companies receive their remuneration for the conveyance of rail-borne Post Office parcels.

The apportionment of the receipts among the railway companies is made by the R.C.H. Account is taken of the number of, and mileage travelled by, Post Office receptacles conveyed, and of each company's earnings on its own parcel traffic. From time to time the R.C.H. tests the accounts furnished by the Post Offices.

Bulk Travel Facilities

Some few years ago the railway companies introduced the "bulk travel" arrangement to enable traders and their employees to travel on their business between any two stations in Great Britain and Ireland at something less than the ordinary fares. Traders who wish to avail themselves of this facility must have the necessary rail traffic qualification and deposit with the Railway Clearing House a certain sum. To traders who comply with these requirements, the R.C.H. issues books of vouchers; these are filled in as necessary and presented at the booking offices (without payment at the time of booking) in exchange for tickets for business journeys. It is a condition of the scheme that the amount deposited shall be exhausted within twelve months.

Large numbers of firms participate in this scheme, for whom accounts are kept in the Clearing House. When a month's vouchers are brought into account, statements, supported by the vouchers presented at the booking offices, are rendered to the respective firms showing the value of the travel taken and the balance standing to their credit at the end of the

(*Continued on page* 684)

RAILWAY NEWS SECTION

PERSONAL

Mr. Reginald Herbert Hill, C.B., whose receipt of the K.B.E. was announced in the King's Birthday Honours List, was born in London on November 27, 1888, and was educated at Merchant Taylors School and St. John's College, Oxford. Mr. Hill entered the Railways Department of the Board of Trade in 1912, and in 1919 became Private Secretary to Sir Eric Geddes during the formation of the Ministry of Transport. In 1927 Mr. Hill became Assistant Secretary (Finance Department), Ministry of Transport, and in 1934 Principal Assistant Secretary. When the re-organisation of the Ministry took place in 1937, Mr. Hill was appointed Principal Assistant Secretary in charge of the Public Utilities, Finance, and Statistical Departments. He was Railway Control Officer from the time the Minister of Transport assumed control of the railways on September 1, 1939, until August, 1940, when he was appointed Deputy Secretary to the Ministry. On the amalgamation of the Ministry of Transport with the Ministry of Shipping, in May, 1941, he became Deputy Director-General (Inland Transport) of the combined department. He is Chairman of the Central Transport Committee, a wartime organisation for co-ordinating all internal transport under the Ministry of War Transport and the principal Government Departments which are users of transport. Mr. Hill received the C.B. in 1933.

Mr. John Frederick Heaton, F.S.A.A., M.Inst.T., Chairman & Managing Director of Thomas Tilling Limited, who is created a Knight Bachelor in the Birthday Honours, was born at Bradford on October 18, 1880. He was educated at Bradford Technical College and for a few years after leaving school was engaged in accountancy. At the age of 23 he became Secretary of Crawshaw & Warburton Limited, colliery proprietors, of Dewsbury, and while in the service of this company passed with honours the final examination of the Society of Incorporated Accountants & Auditors. Mr. Heaton joined the staff of Thomas Tilling Limited in London as Accountant in 1915, and in 1916 became also Secretary of the company; he was elected to the Board of Directors in 1921. In 1918, he founded the Road Transport & General Insurance Co. Ltd., of which he was Managing Director until 1930. He also founded, in 1922, Motor Credit Services Limited. He became Chairman of Thomas Tilling Limited in 1930. Mr. Heaton is well known in railway circles by reason of his connection with many of the road transport organisations which have become closely associated with the four group railways. He is a Member of the Inland Transport War Council, which was formed in April, 1941, and advises the Minister of War Transport on questions of policy. Mr. Heaton is also a Director of the Alliance Assurance Co. Ltd. He has been a Director of Tilling & British Automobile Traction Limited since April, 1928, and holds the office of Chairman and Vice-Chairman in alternate years. This practice was begun in 1936, and Mr. Heaton is Chairman for the current year. Mr. Heaton is Chairman of a large number of provincial motorbus organisations, including the following :—

Bath Electric Tramways Limited.
Bath Tramways Motor Co. Ltd.
Brighton, Hove & District Omnibus Co. Ltd.
Bristol Joint Services Committee.
Bristol Tramways & Carriage Co. Ltd.
Eastern Counties Omnibus Co. Ltd.
Eastern National Omnibus Co. Ltd.
Keighley-West Yorkshire Services Limited.
National Omnibus & Transport Co. Ltd.
Norwich Omnibus Company.
Southern National Omnibus Co. Ltd.
United Automobile Services Limited.
West Yorkshire Road Car Co. Ltd.
Westcliff-on-Sea Motor Services Limited.
Western National Omnibus Co. Ltd.
York-West Yorkshire Joint Committee.

Photo [*Lafayett.*

Mr. Reginald Herbert Hill, C.B.

Deputy Director-General, Ministry of War Transport, who becomes a Knight Commander of the Most Excellent Order of the British Empire

Mr. John Frederick Heaton

Chairman & Managing Director of Thomas Tilling Limited, and a Member of the Inland Transport War Council, who becomes a Knight Bachelor

Other transport and associated Chairmanships which he holds are:—

J. Calnan & Sons Ltd.
Daimler Hire Limited.
Eastern Coach Works Limited.
Ford Limited.
E. W. Rudd Limited.

Among other Directorships he holds are those of:—

Chatham & District Traction Company.
Hastings Tramways Company.
Maidstone & District Motor Services Limited
Westpool Investment Trust Limited.

Mr. Heaton has taken a notable lead in the development of producer-gas operation, and has accumulated an unexampled volume of experience. As a result of this he has expressed the view that the operation by producer-gas of road transport vehicles will prove practicable, not only as a substitute when liquid fuel is scarce, but as a permanent feature when normal times return. The experience of the Tilling Group of Companies with producer gas has recently been placed at the disposal of the London Passenger Transport Board.

Mr. Frank W. Crews, who, as recorded in our May 29 issue, has been appointed Secretary of the Institute of Transport with effect from June 1, was born in 1901 at Yelverton, Devon. He was educated at Hoe Grammar School, Plymouth, University College, London, and the Institute of Education. He graduated B.A. with Honours in History, and took the University of London Teacher's Diploma. In 1923 he joined the staff of the now defunct *Westminster Gazette* in the Insurance Department. In 1924 was appointed to the University of London Administrative Staff as Assistant Secretary of the University of London Appointments Board & Commerce Degree Bureau. In 1927 transferred to the Institute of Transport as Assistant to the Secretary, Mr. A. Winter Gray. Mr. Crews was appointed Assistant Secretary in 1935 and, on the retirement of Mr. Winter Gray in 1941, became Acting Secretary. Mr. Crews is an Associate Member of the Chartered Institute of Secretaries.

Mr. F. W. Crews
Appointed Secretary of the Institute of Transport from June 1

Mr. Roland M. T. Richards
Appointed Traffic Manager, Southern Railway

Mr. Roland M. T. Richards, whose permanent appointment as Traffic Manager, Southern Railway, as from June 1, 1942, has been confirmed, was born in 1890. He entered the service of the S.E.C.R. in 1908, and after being trained in various phases of railway work was appointed Assistant to the Eastern District Superintendent at Ashford. In April, 1915, he joined the Railway Operating Division in France, and was demobilised in 1919, with the rank of captain. He rejoined the S.E.C.R. and was appointed Assistant London District Traffic Superintendent; on the amalgamation of the railways he was transferred to Waterloo as Assistant Divisional Superintendent. In 1930 Mr. Richards was promoted to Divisional Superintendent of the London (West) Division, where he remained until 1933. In that year he was selected to fill the newly formed position of Development Officer to the General Manager. Whilst so engaged he undertook an extensive mission to South Africa in 1936, in order to perfect the relationship between the producers of that country and the Southern Railway, over which system, in peacetime, great quantities of South African produce passed, *via* Southampton Docks. In July, 1937, he became Assistant Traffic Manager and this led to his visiting the U.S.A. and Canada to study port and transport conditions in those two countries. On January 1, 1940, Mr. Richards was appointed Traffic Manager, during the period in which Mr. E. J. Missenden held the position of General Manager in the absence of Mr. Gilbert Szlumper. As Traffic Manager he is responsible for both commercial and operating matters, a most strenuous task even in peacetime; but during the past 2½ years he has had to cope with the many special emergencies inseparable from war. In spite of the extensive increase in freight traffic, the important business, civilian, and leave services still run with the regularity characteristic of the Southern Railway.

Mr. Harold J. F. Gourley, M.Eng., M.Inst.C.E., of Messrs. Binnie, Deacon & Gourley, Artillery House, Westminster, London, S.W.1, has been elected Chairman of the Committee of the Association of Consulting Engineers for the year 1942-43.

Mr. Robert Reade retired from the position of Commercial Assistant to the Traffic Manager, Great Southern Railways, Eire, on March 31, 1942. He joined the Traffic Manager's staff of the Midland Great Western Railway in 1891, and, after promotion in that office, was appointed Chief Rates Clerk in 1910. On amalgamation of the Irish Railways in 1924, Mr. Reade was placed in control of the General Section in the Commercial Manager's Office. In 1932, consequent on re-organisation, Mr. Reade became Chief Rates Assistant to the Traffic Manager, and on the retirement of the Assistant Manager in 1937 was appointed Commercial Assistant to the Traffic Manager, a post he held until his retirement. During his long service Mr. Reade was in constant touch with the Irish trading public, and was well known in railway circles, both in Ireland and Great Britain. For some years he held the position of Secretary of the Dublin Traffic Conference, and regularly attended the Cross-Channel Traffic Conferences and other meetings held at the English, and Irish, Railway Clearing Houses.

Photo] [Lafayette

Mr. Robert Reade
Commercial Assistant to the Traffic Manager, Great Southern Railways, Eire, 1937-1942

The King's Birthday Honours List

Among the honours announced in the King's birthday list were the following of transport and industrial interest:—

Baronets

Mr. Thomas Harrison Hughes, Director of the Liner Division, Ministry of War Transport.

Sir Francis L'Estrange Joseph, K.B.E., M.I.Mech.E., J.P., D.L., a Director of the London Midland & Scottish Railway Company, and of the Birmingham Railway Carriage & Wagon Co. Ltd.

Knights Bachelor

Mr. Geoffrey Duke Burton, Director-General, Mechanical Equipment, Ministry of Supply.

Mr. John McLean Duncanson, a Director of the Steel Co. of Scotland Ltd., Deputy Iron & Steel Controller.

Mr. Holbrook Gaskell, O.B.E., M.I.E.E., A.M.I.Mech.E., a Director of Imperial Chemical Industries Limited.

Mr. John Frederick Heaton, Chairman & Managing Director of Thomas Tilling Limited. Member of the Inland Transport War Council.

Mr. Robert Stewart Johnson, O.B.E., Chairman & Managing Director of Cammell Laird & Co. Ltd.

Mr. John Hugh Francis Raper, Member, Transportation, Railway Department (Railway Board), Government of India.

Mr. Satyendra Nath Roy, C.S.I., C.I.E., I.C.S., Secretary to the Government of India in the Department of Communications.

Mr. Frederick Charles Yapp, Deputy Chairman of Vickers-Armstrongs Limited.

C.B.

Mr. Herbert John Gough, M.B.E., M.I.Mech.E., F.R.S., Deputy Controller-General, Research & Development, Ministry of Supply.

Mr. George Wilfred Turner, Second Secretary, Ministry of Supply.

K.C.M.G.

Sir Henry Edward Barker, lately Ministry of War Transport representative, Middle East.

C.M.G.

Mr. John Gammie, Deputy Representative of the Ministry of War Transport in New York.

Mr. Henry Lovell Goldsworthy Gurney, Colonial Administrative Service, Chief Secretary to the Conference of East African Governors, and Secretary to the High Commissioner for Transport, Kenya & Uganda.

Mr. Henry Drummond Hancock, Under Secretary, Ministry of Supply, acting as Secretary-General to the British Raw Materials Mission, Washington.

C.I.E.

Mr. Cecil Gilbert William Cordon, E.D., Agent & General Manager, Madras & Southern Mahratta Railway Company.

K.B.E.

Mr. Reginald Herbert Hill, C.B., Deputy Director-General, Ministry of War Transport.

C.B.E.

Mr. Claude Dixon Gibb, Director-General, Weapon Production, Ministry of Supply.

Mr. Hector Leak, Assistant Secretary, Board of Trade.

Mr. Farquhar Victor Macdonald, General Manager, Gold Coast Railway.

Commander Edward Robert Micklem, R.N. (Retd.), General Manager, Vickers-Armstrongs Limited.

Mr. Leslie Roberts, General Manager, Manchester Ship Canal Company.

Mr. Hubert Edmund Walker, O.B.E., Deputy Director of Public Works, Nigeria.

Mr. William Law Watson, M.B.E., A.M.Inst.C.E., Head of the Engineering Contracts Branch, Crown Agents for the Colonies.

O.B.E.

Mr. John Herman Binder, Superintending Examiner, Patent Office, Board of Trade.

Mr. Dudley George Bourn, Traffic Manager of the Iraq State Railways.

Mr. Gideon John Brown, Deputy Director, Tank Supply, Ministry of Supply.

Mr. Frank Cook, Sub-District Manager in the Road Transport Organisation of the Ministry of War Transport, Hull.

Mr. Arthur Hughes Dodd, Engineering Inspector, Grade 1, Ministry of War Transport.

Mr. Durban Haigh, Chief Executive Officer, War Risk Insurance Office, Ministry of War Transport.

Mr. Cecil Joseph Hurst, Member of the Midland Regional Transport Committee, Birmingham.

Mr. Robert Irwin Kirkland, Workshops Superintendent, Kenya & Uganda Railways & Harbours.

Mr. Herbert William Morgan, Docks Manager, Swansea.

Mr. Harry Joel Mulleneux, Chief Electrical Engineer, Great Indian Peninsula Railway.

Captain Malin Sorsbie, Manager in West Africa, British Overseas Airways Corporation.

Mr. Harry Willshaw, Chairman, Birmingham Reconstruction Panel. Works Engineer, Dunlop Rubber Company.

M.B.E.

Mr. Hugh Benedict Adams, Divisional Electrical Engineer, North Western Railway, Lahore.

Mr. Herbert Allen, Managing Director of the Yelloway Motor Services Limited, Rochdale.

Mr. William Buttery, Chief Train Controller, Kenya & Uganda Railways & Harbours.

Mr. Arthur Collins, Outside Manager, Vickers-Armstrongs Limited.

Mr. Kandappa Durai, Senior Superintendent, Way & Works, East Indian Railway.

Mr. James Victor Stuart Edwards, Assistant Director of Engineering, Railway Department (Railway Board), Government of India.

Mr. John Douglas Galliard, A.M.I.E.E., Electrical Superintendent, Mersey Docks & Harbour Board.

Mr. Charles Ernest Lucette, Air Raid Precautions Officer, Manchester Ship Canal Company.

Mr. Edward George Marsden, Principal Assistant to the Secretary, Railway Executive Committee.

Commander Peter Mursell, Officer Commanding, No. 6 Ferry Pilot Pool, Air Transport Auxiliary, British Overseas Airways Corporation.

Mr. Thomas Pilkington Norris, M.C., Group Labour Manager, Imperial Chemical Industries Works.

Mr. Peter George Parkhurst, Staff Officer, Ministry of War Transport.

Mr. James Brown Paterson, Works Manager, Beardmore Diesels Limited, Dalmuir.

Mr. Denis Eli Skedding, Member of the Midland Regional Transport Committee. Manager, Road Passenger & Transport Association Limited.

Mr. John William Terrington, Operating Superintendent, Kenya & Uganda Railways & Harbours.

Mr. Harold Clark Walker, Senior Engineer-Surveyor, Ministry of War Transport.

Mr. Leonard Weatherall, Railway Liaison Officer (L.M.S.R.), Mines Department.

Mr. Jack Leslie Webster, Head of the Air Raid Precautions Department, G.W.R.

Mr. Frederick Charles Wilson, District Superintendent, Stratford, L.N.E.R.

Mr. Harry Wood, Chairman of the North Eastern Region Coal Transport Advisory Joint Committee.

[*In war conditions it has been made clear that recipients of knighthoods are now permitted to use their new titles immediately on the publication of the "London Gazette" and not to wait as in peacetime for the accolade.*]

L.M.S.R. Staff Changes

Mr. O. T. Tewson, Assistant Divisional Solicitor, Manchester, to be Divisional Solicitor, Manchester, *vice* Mr. W. O. Hickson, deceased.

Mr. J. Rigby, Chief Common Law Assistant, Manchester, to be Assistant Divisional Solicitor.

Mr. T. R. Heaton, Assistant District Goods Manager, Birmingham, to be Dock Superintendent, Holyhead, *vice* Mr. H. W. Smith, transferred.

Mr. F. Moxon, Goods Agent, Nottingham, to be Goods Agent, St. Pancras & Somers Town, *vice* Mr. R. Paterson, promoted.

Mr. H. W. Smith, Stationmaster & Goods Agent, Holyhead, to be Goods Agent, Nottingham, *vice* Mr. F. Moxon.

Mr. J. Hammond, Goods Agent, Langton Dock & North Mersey, to be Goods Agent, Alexandra Dock, *vice* Mr. J. Lightburn, retiring.

Mr. E. Williams, Chief Delivery Clerk, Canada Dock & Bankfield, to be Goods Agent, Langton Dock & North Mersey, *vice* Mr. J. Hammond.

Mr. J. S. Gibbons, Goods Agent, Atherton Central (also i/c Bag Lane & Chequerbent), to be Goods Agent, Accrington, *vice* Mr. J. Bamber, retired.

Mr. J. H. Williams, Chief Accounts Clerk, D.G.M.O., Warrington, to be Joint Goods Agent, Widnes Dock (L.M.S.R. and L.N.E.R.), *vice* Mr. D. Fazackerley, retired.

Mr. C. Murray, Stationmaster & Goods Agent, Gourock, to be Goods Agent, Carlisle, *vice* Mr. W. H. Kelly, retired.

Mr. A. Gass, Stationmaster & Goods Agent, Largs, to be Stationmaster & Goods Agent, Gourock, *vice* Mr. C. Murray.

Mr. E. Nadin, Stationmaster & Goods Agent, East Ham, to be Stationmaster, Burton-on-Trent, *vice* Mr. E. A. Stafford, retiring.

Mr. G. Washington, Stationmaster & Goods Agent, Matlock, to be Stationmaster & Goods Agent, East Ham, *vice* Mr. E. Nadin.

Mr. J. H. Knight, Chief Inspector, Chief Mechanical Engineer's Department (C. & W.), Derby, to be Divisional Carriage & Wagon Outdoor Assistant, Chief Mechanical Engineer's Department, Manchester, *vice* Mr. J. T. Cox, promoted.

Mr. E. H. Thompson, Divisional Police Superintendent, Leeds, to be Divisional Police Superintendent, Glasgow, *vice* Mr. J. Revans, retiring.

Mr. L. G. Hind, Chief Police Inspector, Crewe, to be Divisional Police Superintendent, Leeds, *vice* Mr. E. H. Thompson.

Mr. W. Nicholls, Permanent Way Inspector, Wakefield, to be Chief Permanent Way Inspector, Leeds, *vice* Mr. C. L. Hopwood, retired.

TRANSPORT SERVICES AND THE WAR—144

Cross-Country Coaches Withdrawn

On June 8 various cross-country motor coach services of the Associated Motorways network were withdrawn. The routes concerned are Cheltenham to Derby, Cheltenham to Nottingham, Cheltenham to Kettering, Cheltenham to Llandrindod Wells, and Oxford to Northampton. The Oxford-Nottingham withdrawal has abolished the connection between Northampton and Bournemouth. These withdrawals amount to a considerable curtailment of the useful and comprehensive network of cross-country services originated by Black & White Motorways Limited with Cheltenham as a base, and subsequently developed considerably under the partnership title of Associated Motorways in conjunction with the Red & White, Birmingham & Midland, United Counties, Greyhound, and Royal Blue undertakings.

More Standard Buses for London

More standard buses will shortly be in service on London Transport routes. On December 1, 1941, the first war standard bus in London—a Leyland—made its appearance on route 22 from Putney to Homerton (see our issue of December 19 & 26, 1941, page 673). A further 11 buses went into service early this year. Now there are to be 51 more—42 "G" types (Guys) and 9 "B" types (Bristol). Six of the latter type went into service on May 1. The new vehicles are 4-wheelers, with 5-cylinder Gardner engines; friction-clutches; 4-speed gear-boxes; and vacuum servo-assisted brakes. The seating arrangements for 56 are the same as on existing types of London Transport buses, namely, 30 on the upper deck and 26 on the lower. Progress in design has necessarily been restricted by the war. Some new buses, however, were essential and it was decided that replacements should be to a standard specification, so as to reduce to the minimum the amount of labour and materials required. Representatives of Government departments concerned, of vehicle builders, and of operators, co-operated in the design. In general appearance the standard bus varies but little from the normal types of vehicle. The principal differences are the elimination of all non-essential fittings and refinements, such as the lining panels and rexine coverings, to save labour and material. The bodies of the Leyland and Bristol buses were built by the Park Royal Coach Works Limited; those for the Guys are being built by Park Royal and Weymann. The reviving of the letter "B" for a London bus type recalls the famous standard type of the last war, of which 1,319 went overseas.

Locomotive Decontamination

Among extensive A.R.P. measures that have been adopted by the British railways are arrangements for cleansing rolling stock contaminated during a journey by an enemy gas attack. A train so contaminated would be worked to its destination, where the engine would be uncoupled and sent to the nearest locomotive depot. Here it would be shunted to an out-of-the-way place in the yard and inspected by a responsible person. Then the decontamination squad, dressed in protective clothing (including respirators) would undertake the work of decontamination. The first stage of this process consists of hosing down the following parts with hot water:—

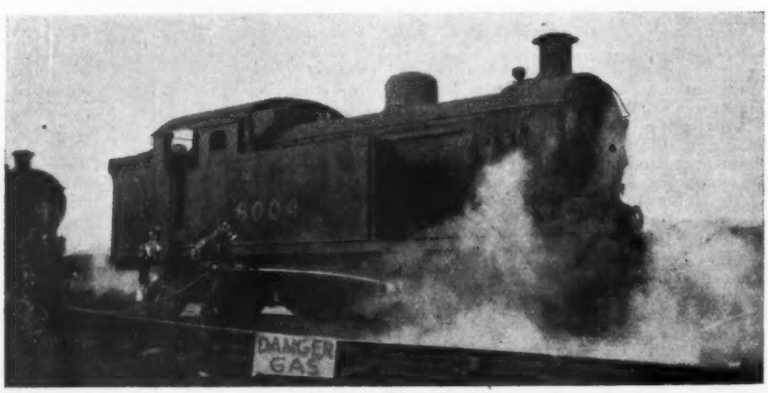
(1) Platforms and footplate.
(2) Buffer beams.
(3) Buffers.
(4) Steam, vacuum, and Westinghouse hose connections.
(5) Mechanical lubricator and Westinghouse pump lubricator (if provided).
(6) Footsteps.
(7) Wheel bosses and exposed axleboxes.
(8) All accessible parts of outside motion.
(9) Anti-glare screens.

It will be noticed that the boiler is not included, because it would be in steam at the time of contamination, and the heat would render the sprayed gas ineffective. Hot water for hosing is obtained from the engine itself by two 60-ft. lengths of armoured hose of ¾-in. dia., which are connected to one of the injectors by an adaptor. A powerful jet of hot water, which emerges from the nozzles at high velocity and with effective scouring and scalding action, is thus provided. The photograph we reproduce shows an L.N.E.R. suburban tank locomotive being hosed down. The second stage of decontamination consists of swabbing over twice with sponge cloths or waste soaked in paraffin oil the following parts:—

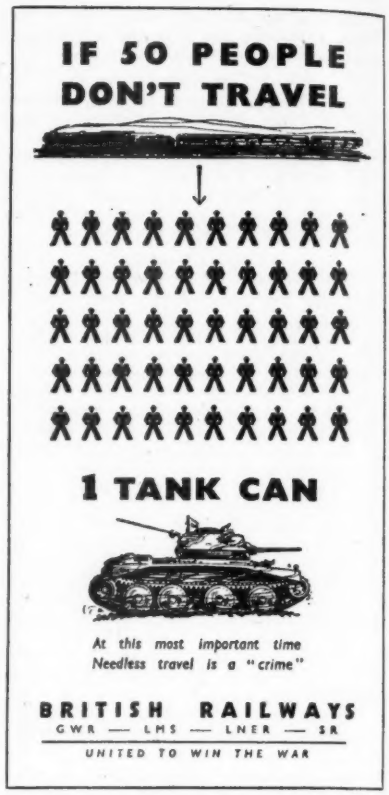
(1) All handrails.
(2) Couplings.
(3) Metal parts of steam and brake hosepipes except as mentioned in the 1st stage (4) above.
(4) Fire irons, head and hand lamps, destination boards and discs, and all other parts likely to be handled.

A fresh sponge cloth or waste must be used on every occasion. Finally, the yellow detector paint on the cab windows of the locomotive would be renewed. The paint enables the enginemen readily to detect when the engine has passed through gas, which causes red or rust-coloured spots to appear on the paint.

After treatment, the locomotive would be ready for traffic again and left to "weather," but, if more than minor repairs were needed, extensive decontamination might be necessary before parts were handled.



First stage in the decontamination of an L.N.E.R. suburban tank locomotive, namely, hosing down with a powerful jet of hot water


IF 50 PEOPLE
DON'T TRAVEL
1 TANK CAN
At this most important time
Needless travel is a "crime"
BRITISH RAILWAYS
GWR — LMS — LNER — SR
UNITED TO WIN THE WAR

The latest British railways advertisement to discourage travel

Famous Goods Train in Air Raid

The following vivid description from Goods Guard R. S. Towells, of Bristol (Temple Meads) was published in the June issue of the *Great Western Railway Magazine*:—

"The 9.55 p.m. express goods, Bristol to Paddington, otherwise and more familiarly known as The Cocoa, had an exciting time during the first blitz on Bath. On the night of April 25 we had tested the vacuum at Temple Meads, and left that depot dead on time to call at East Depot, after which our Bath stop was due to pick up traffic. . . . Although late, it was not yet dark, and one could almost see to read labels without a hand-lamp. The country between Bristol and Bath was very quiet and peaceful, and the driver and I were hoping for a good trip to Swindon and a good run home early Sunday morning.

"On this occasion it was not to be quite so simple, however. With 57 wagons on, we approached Twerton tunnel signal box, only to receive the ominous 'Air Raid, Red' and its attending uncertainties. The latter did not last for long. On arrival at Bath, the opening flares were observed and we had no illusions as to what to expect. We picked up our traffic without the use of a white

light from the hand lamp, but before this small job was completed, the Bath goods depot area was a perfect bedlam from the noise of dive bombers and high explosives and the whining of falling bombs. During the height of the blitz, I lay down by the side of my brake-van. Then, realising that the train was stopped where it was for some time to come, I made my way to the nearest signal box, examining the railway track *en route* and reporting my observations to the responsible officials."

Part-time Railway Workers

Spare-time workers are helping to move the war freights on the L.M.S.R. The number of men employed varies from week to week, but at three L.M.S.R. goods depots in the Birmingham area 273 men came forward in response to a public appeal during a recent week to act as goods porters; 141 worked on Sundays and 132 worked on weekdays. All the men are engaged on full-time jobs, and their help in loading and unloading the war freights is given during their off-duty hours. This is the equivalent of 62 men working a 48-hour week. The times of work are arranged to suit the convenience of the individual, and the hours worked vary from two to eight. Most of the work is done between 6 p.m. and 9 p.m. The volunteers come from various walks of life and include labourers, motor drivers, A.F.S. firemen, butchers, and insurance inspectors. The men are paid at the same rate as the regular staff and they also participate in porterage bonus on the tonnage handled by the gangs. The scheme is also being applied at other centres where there are large goods depots, and spare-time men have been employed in the Leeds, Sheffield, Leicester, Warrington, and South Staffordshire districts.

Railway Reductions in Eire

By reason of the non-delivery of locomotive coal, the Great Northern Railway found it necessary to cancel various passenger trains as from Wednesday, May 27, including five trains on the Dublin-Dundalk service, four between Dundalk and Clones, two on the Carrickmacross branch, two on the Cootehill branch, and four each on the Belturbet and Cavan branches.

Further cancellations and alterations, affecting principally the main Dublin to Belfast line and Sunday services, took effect on Sunday, May 31. It is understood that the five daily trains between Dublin and Belfast have been reduced to three, and that Howth, Malahide, and Skerries are now served only by local railcars with limited accommodation.

A further change, which became effective on Monday, June 1, is that the through local train services in the Dublin area between the Great Northern Railway and the Great Southern Railways have ceased to operate, and passengers now have to change trains in every case at Amiens Street.

Locomotive Coal in Eire

In an effort to overcome the difficulties caused by the poor quality of the coal which the Great Southern Railways Company is at present compelled to use, arrangements are now being made to convert the fine coal into briquets.

Horse Coaches Again in Eire

A four-in-hand stage coach, with accommodation for 25 passengers, began to ply regularly between Limerick and Rathkeale on June 8. Horses are changed at Adare. This scheme of Lord Adare was referred to at page 578 of our May 15 issue.

R.A.F. Raids in Germany

Although precise information is necessarily lacking, it appears that the very heavy R.A.F. raids of May 30/31 on Cologne (with 1,130 aircraft) and of June 1/2 on Essen (with 1,036 aircraft) caused serious and lasting transport dislocation, and resulted in the destruction or damage of much Reichsbahn property. A Berne report stated that all railway traffic between Cologne and Berlin was suspended for 5 days.

German Fuel Restrictions

Hitler has given instructions that the use of fuel gas should be increased in order to reduce the consumption of liquid fuel.

No. 1, the NORTHERN AREA, consisting of Durham, Northumberland, and the North Riding of Yorkshire.

No. 2, the NORTH EASTERN AREA, consisting of the East Riding and the West Riding of Yorkshire; and the city of York.

No. 3, the NORTH MIDLAND AREA, consisting of Derbyshire, Leicestershire, Lincolnshire, Northamptonshire (including the Soke of Peterborough), Nottinghamshire, and Rutland.

No. 4, the EASTERN AREA, consisting of Bedfordshire, Cambridgeshire (including the Isle of Ely), Essex (except the boroughs of Barking, Chingford, Dagenham, East Ham, Ilford, Leyton, Walthamstow, Wanstead & Woodford, and West Ham; and the urban districts of Chigwell and Waltham Holy Cross), Hertfordshire (except the urban districts of Barnet, Bushey, Cheshunt, and East Barnet; and the rural district of Barnet), Huntingdonshire, Norfolk, and Suffolk.

No. 5, the LONDON AREA, consisting of the administrative counties of London and Middlesex; so much of Essex as consists of the boroughs of Barking, Chingford, Dagenham, East Ham, Ilford, Leyton, Walthamstow, Wanstead & Woodford, and West Ham; and the urban districts of Chigwell and Waltham Holy Cross; so much of Hertfordshire as consists of the urban districts of Barnet, Bushey, Cheshunt, and East Barnet; and the rural district of Barnet; and the parish of Aldenham in Watford Rural District; so much of Kent as consists of the boroughs of Beckenham, Bexley, Bromley, and Erith; and the urban districts of Chislehurst & Sidcup, Crayford, Orpington, and Penge; and so much of Surrey as consists of the boroughs of Barnes, Beddington & Wallington, Croydon, Epsom & Ewell, Kingston-on-Thames, Malden & Coombe, Mitcham, Richmond, Surbiton, Sutton & Cheam, and Wimbledon; and the urban districts of Banstead, Carshalton, Coulsdon & Purley, Esher, and Merton & Morden.

No. 6, the SOUTHERN AREA, consisting of Berkshire, Buckinghamshire, Dorset, Hampshire (including the Isle of Wight), and Oxfordshire.

No. 7, the SOUTH WESTERN AREA, consisting of Cornwall, including the Isles of Scilly, Devon, Gloucestershire, Somerset, and Wiltshire.

No. 8, the SOUTH WALES AREA, consisting of Brecknockshire, Cardiganshire, Carmarthenshire, Glamorganshire, Monmouthshire, Pembrokeshire, and Radnorshire.

No. 8 (b), the NORTH WALES AREA, consisting of Anglesey, Caernarvonshire, Denbighshire, Flintshire, Merionethshire, and Montgomeryshire.

No. 9, the MIDLAND AREA, consisting of Herefordshire, Shropshire, Staffordshire, Warwickshire, and Worcestershire.

No. 10, the NORTH WESTERN AREA, consisting of Cheshire, Cumberland, Lancashire, and Westmorland.

No. 11, the SCOTTISH AREA, consisting of the whole of Scotland.

No. 12, the SOUTH EASTERN AREA, consisting of Kent (except the boroughs of Beckenham, Bexley, Bromley, and Erith; and the urban districts of Chislehurst & Sidcup, Crayford, Orpington, and Penge); the parts of Surrey not in Region 5; and Sussex.

The revised Regional Transport areas of Great Britain, which became effective in September, 1941

The principal changes since the publication of our map on August 23, 1940, are the transfers of parts of Surrey to No. 12 (from 6); of parts of Dorset to No. 6 (from 7); and of parts of Derby to No. 3 (from 10)

Stations for the supply of fuel gas are to be set up wherever there are factories for its production, said the *Westfälische Landeszeitung* of May 8. As from May 1, fuel gas is again rationed, according to the *Münchner Neueste Nachrichten*.

New European Timetables

The new Reichsbahn passenger timetable, which came into force on May 4, is to last for a whole year. It is not intended that there should be extra trains for persons on leave and on holiday. Goods traffic can therefore be adjusted to the varying needs of the year. The countries which are neighbours of Germany have fixed their international timetables entirely in accordance with the German plan, according to the *Frankfurter Zeitung* of May 24. Earlier reference to the new European timetables was made at page 617 of our May 29 issue.

German Traffic Organisation for Europe

As most of the European countries are either in the military occupation or under the economic control of Germany, the Reichsbahn has established a widespread organisation for the control of long-distance goods traffic in the interests of the German war effort. The Generalbetriebsleitung (General Operational Management) is the central authority responsible for the organisation and smooth working of through goods traffic between Germany and almost all other countries in Europe. It is officially abbreviated as "Gbl." At present there are three in Germany, namely, Gbl West, Gbl South-East, and Gbl South, with headquarters at Essen (Ruhr), Berlin, and Munich, respectively. The Gbl South was formerly at Würzburg.

These central offices were established several years ago and were then known as Oberbetriebsleitungen (Main Operational Managements). Their task was to develop standard goods train services with heavy loadings, in collaboration with the Reichsbahndirektionen (Reichsbahn managements), the Reichsbahnzentralämter (Reichsbahn Central Offices), and the Hauptwagenamt (Main Wagon Allocation Office). As the Oberbetriebsleitungen had no executive power, their competence was found to be too limited to carry out their duties effectively. This disadvantage was eliminated early in 1940 when the Oberbetriebsleitungen were given wider and executive powers; their duties extended; and their name changed to Generalbetriebsleitungen. Each Gbl was placed under a President. The executive powers enabled them to take immediate steps to enforce the organisation and working of regular long-distance goods train services. Special coal and ore transport committees are attached direct to the Gbl West and Gbl South-East, but the equivalent committee for the Gbl South has its headquarters at Essen. These committees consist of the President of the Gbl, and of representatives of the Reichskohlenkommissar (Reich Coal Controller), of the Armed Forces, of the Ministry of Transport, of inland shipping and of maritime shipping (both appointed by the Minister of Transport), and of a representative of the Four-Year-Plan organisation (appointed by the Ministry of Economy). The orders issued by the committees direct shippers to make use of one means of transport in preference to another (rail, inland waterways, roads, etc.). The committees pay particular attention to the reduction, as far as possible, of the necessity for running "empties," and to the grouping of consignments to form "block trains."

With a view to securing even closer collaboration between the railways, inland shipping, and road transport, a Hauptverkehrsleitung (Chief Traffic Management) has been established with headquarters at the Ministry of Transport. This has a Gebietsverkehrsleitungen (Regional Traffic Managements) each of which covers the administrative regions placed under the Gbl. The President of the Gbl is also the head of the Gebietsverkehrsleitung. The latter is composed of one representative each of the Reichsbahn, inland shipping, maritime shipping, and road traffic. The work of the Gebietsverkehrsleitung is similar to that of the Gbl, but is limited to smaller regions within Germany. Certain more restricted zones are placed under Bezirksverkehrsleitungen (District Traffic Managements), the jurisdiction of each of which must not extend beyond the region of one Reichsbahndirektion. The President of a Reichsbahndirektion is also the head of the corresponding Bezirksverkehrsleitung.

Platform Food Trollies in Germany

Platform food trollies have been withdrawn from service on the German State Railway, according to a message from Stockholm dated June 10. All railway restaurant cars have also been withdrawn, as recorded at page 657 of our June 12 issue.

Swiss Rolling Stock Sent to Germany

By reason of heavy war demands on the German State Railway, the Swiss authorities have been forced to send to Germany 27 steam locomotives and several thousands of goods wagons in order to bring back imports to Switzerland, according to a communique issued by the Swiss Federal Railways at the beginning of June. Earlier reference to the scheme was made at page 578 of our May 15 issue.

Buses withdrawn in Paris

By reason of the acute shortage of petrol and rubber, all the buses operating in Paris were withdrawn from service towards the end of May. No precise information is available as to how many vehicles have been working there recently, but undoubtedly it is a very much smaller total than that suggested by fantastically exaggerated statements in some daily newspapers. It is reported that some of the closed Metro stations were opened at the same time as the buses were withdrawn. The Metro remains the only public means of urban traffic now serving Paris.

New Chinese Strategic Railway

The construction of a light railway between Chungking and Kweiyang, a town in Kweichow Province, a little over 300 miles away, is being planned by the Chinese Ministry of Communications, according to a Chungking report. The railway will follow approximately the route of the present highway. The relation of this line to other existing and proposed railways may be seen from the map published at page 244 of our issue dated March 7, 1941.

Proposed Australian Travel Ban

Private railway travel by women in Australia will probably be restricted severely under travel priorities announced on May 26. Wives are being prohibited from following husbands engaged in war work in different parts of Australia. Railway statistics have shown recently an extraordinarily high proportion of bookings by women, mostly wives, mothers, and sweethearts travelling to other states to welcome home returning members of the A.I.F., with consequent serious congestion of passenger trains. Wholesale migrations of women to take lodgings near camps where their husbands are posted have also added to transport problems.

C.N.R. Railwaymen in the Forces

The Canadian National Railways have not asked for the exemption of a single man from military service. In this war more than 5,000 Canadian National men are already under arms. In addition to the men who have joined the fighting forces, the Canadian railways have been drawn upon heavily by the government for technical men, for experts in various fields, and for administrators of all kinds.

Horse-drawn Delivery in New York

Horse-drawn carts are being used instead of motor vehicles for deliveries by the New York *Daily News*. Beginning on June 2, all delivery services by all such New York undertakings serving the public as newspapers, laundries, bakeries, milk companies, and departmental stores, drastically curtailed their delivery services, to save petrol and tyres.

The Work of the Railway Clearing House

(*Continued from page* 678)

month. The transactions under this heading run into very large figures per annum.

LONDON PASSENGER TRANSPORT POOL

The accounts and balances of the pool set up under the London Passenger Transport Act, 1933, are also dealt with in the Passenger Section of the R.C.H. Traffic Department. This covers the bus, tram, and motorcoach receipts as well as rail. The receipts dealt with amount to many millions per annum.

POOLING ARRANGEMENTS OF MAIN-LINE COMPANIES

A considerable amount of work is performed regularly by the Clearing House in connection with certain pooling arrangements in operation between the main-line railway companies. Passenger, miscellaneous, goods, minerals (other than coal class), and livestock traffic are covered thereby. To give any clear explanation of the nature of the work of the R.C.H. on this matter would involve greater detail than is available in a short article, but some idea of the magnitude of the task may be gathered from the fact that the entries from which the pool receipts are apportioned amount to many millions.

USE OF CALCULATING MACHINES

In the early days all the calculations were made by the R.C.H. staff of clerks. In recent years, however, much of the work has been performed by the use of calculating and tabulating machines.

LEGAL STATUS

It has been mentioned that the Railway Clearing House was formed as a voluntary association with no legal standing. The Clearing System came into operation as from January 2, 1842, and the first meeting was held on April 26, 1842, when George Carr Glyn (afterwards first Baron Wolverton) was elected Chairman of the Committee of Delegates. Portraits of all the Chairmen to date are reproduced herewith, and their tenure of office indicated. The Railway Clearing House Act of 1850 gave the organisation legal status in securing payment of its balances. By virtue of an Act (60 & 61 Vic. cap 116) which received the Royal Assent on July 15, 1897, the Railway Clearing House became a body corporate with its own seal.

(*To be concluded next week*)

Questions in Parliament

Below are summarised Answers to Questions in Parliament affecting transport. The Minister concerned and the date of the Answer are given in parentheses

Booking Office Delays

The suggestion that the Services should issue a form of warrant which should be valid as a ticket has been considered and rejected on the ground that it was not practicable. It is, however, being examined afresh.—(Mr. P. J. Noel-Baker, Joint Parliamentary Secretary, Ministry of War Transport, June 3.)

Laid Up Motor Cars

The administrative difficulties which would arise from the requisitioning of tyres from laid up vehicles are being examined. The suggestion that if tyres are removed from motor cars in storage it should be possible to obtain service ones if the financial circumstances of the owner made it necessary to sell the motor car and demonstrate its capabilities will be taken into account.—(Sir Andrew Duncan, Minister of Supply, June 3.)

Mechanised Transport Corps

Members of the Mechanised Transport Corps are not in the employment of the corps itself, but of the authority or institution to which they are attached. The conditions of service thus vary from case to case; normally they are the same as those of other persons employed by the same authority or institution. Members of the corps who use their own motor cars in the service of Government Departments are paid the same allowances for the use of these cars as members of other organisations doing similar work.—(Mr. P. J. Noel-Baker, June 3.)

Retail Deliveries

When the Minister of Transport, together with the President of the Board of Trade, and the Minister of Food, launched the present plans for rationalising retail deliveries, they explained the objects in view and suggested ways in which these objects could be attained. The methods of detailed execution were left for local decision in the light of local conditions. It is plain that no uniform scheme would be equally appropriate for large towns, small towns, suburbs, villages, and rural areas. The schemes are brought into operation as soon as they are ready, but they can be adjusted and improved later, as experience may dictate. In this way, we secure the desired economies at the earliest practicable date. About 2,000 schemes are already working.—(Mr. P. J. Noel-Baker, June 3.)

Producer Gas

It would be unfair to judge the success or failure of producer gas by the results so far achieved. Compared with engines driven by petrol or diesel oil, it has certain disadvantages; but the results have been sufficiently encouraging to enable the Government to decide that it is the best alternative to petrol for ordinary commercial transport, and that, in view of the need for stringent economy in imported fuel, its use shall be considerably extended.—(Mr. P. J. Noel-Baker, June 4.)

Prime Minister's Railway Journeys

The special train was run to Leeds to ensure that the Prime Minister should be able to carry out his public engagements punctually and with the least expenditure of time and fatigue. This train is specially equipped to make it possible for the Prime Minister to carry out his normal work while travelling. It would not be in the public interest to state the number of coaches of which it consisted, or to give other particulars by which it might be identified. To ascertain the number of occasions on which special trains have been used in the last 12 months would necessitate an amount of labour which I do not, as at present advised, consider to be justified.—(Mr. P. J. Noel-Baker, June 4.)

Taxation of Motor Vehicles

I am afraid that I cannot consider the present abnormal conditions as a suitable occasion for changing the general basis of motor vehicle taxation. (Sir Kingsley Wood, Chancellor of the Exchequer, June 4.)

Rationalisation of Retail Deliveries

Schemes for the rationalisation of retail deliveries are settled locally to meet local conditions. They are founded on certain common principles, but there is no general restriction to a radius of one mile. To secure the maximum economy both of transport and man power, the Government has brought all forms of retailers' deliveries into the scheme, whether by motor van, horse and cart, bicycle or messenger. To permit horse-drawn transport to operate beyond the radius in connection with the scheme would not only mean a serious loss of economy in manpower, but would also entail an unjust discrimination between different traders. (Mr. P. J. Noel-Baker, June 10.)

Parliamentary Notes

L.P.T.B. Bill

The London Passenger Transport Board Bill was read the Third time and passed in the House of Commons on June 9.

Royal Assent

In the House of Lords on June 11 the Royal Assent was given to the Railway Companies (Thos. Cook & Son Ltd. Guarantee) Act, 1942, and the Bombay, Baroda & Central India Railway Act, 1942.

Staff and Labour Matters

Railway Junior Conciliation Staff

An all-round increase of 2s. a week in the war wages and certain increases in standard rates have been granted to junior conciliation staff. The new composite rates are :—

Age	Junior Engine cleaners	Others
	s. d.	s. d.
15	—	23 6
16	31 6	27 6
17	37 6	32 6
18	45 6	40 0
19	47 6	47 6

Hours of Work

After consultation with the Joint Consultative Committee (British Employers' Confederation and Trades Union Congress General Council) the Minister of Labour & National Service has decided that in assessing the labour force required to be retained by any industry or undertaking account will be taken of the length of the hours worked in that industry or undertaking as one important factor. Where it is found that the hours fall short of 52 a week exclusive of meal breaks in the case of industrial work or 46 hours a week exclusive of meal breaks in the case of office staffs, it will be assumed that a reduction of staff could be achieved by increasing the hours of work of the staff retained unless there are special circumstances which make this inappropriate. Examples of special circumstances which may fall within this category are as follow :—

(*a*) If an industry or undertaking employs a large proportion of married women who have their own domestic affairs to look after, it might be found that it would not be reasonable to ask them to work the extra hours.

(*b*) In small businesses where small numbers of people are employed on any one particular function, it might be found that although the worker must be retained to perform his specialised function, the amount of business to be done is not sufficient to keep him employed for longer hours.

Mr. P. J. Noel-Baker, Joint Parliamentary Secretary, Ministry of War Transport, shaking hands with an engine driver during a recent visit to Eastleigh Works. Mr. E. J. Missenden has his hand on Mr. Noel-Baker's shoulder

Notes and News

Permanent Way Institution.—The annual summer general meeting of the Permanent Way Institution is to be held at Charing Cross Station Hotel, Southern Railway, on Saturday, July 4, at 2 p.m. The chair is to be occupied by the President, Mr. F. E. Harrison, O.B.E., Engineer, North Eastern Area, L.N.E.R.

Personal Airways Limited.—Creditors of this company, which is being voluntarily wound up, are required on or before July 25 to send to the liquidator, Mr. J. C. Burleigh, of Old Court Grove House, Roehampton Lane, S.W.15, their names and addresses and the particulars of their debts or claims and the names and addresses of their solicitors, if any.

Companhia de Mocambique.—The extraordinary general meeting of this company which was convened for 11 a.m. on May 25 at the offices of the company in Lisbon, 10, Largo da Biblioteca Publica, was, in the absence of a quorum, again convened for June 15 at the same place. The object for which the meeting was convened was the modification of the company's statutes.

Antofagasta (Chili) & Bolivia Railway Co. Ltd.—An approximate net revenue balance for the year 1941 of £247,000 is announced, which it is proposed to carry forward This figure is struck after making provision for income tax, etc., a full year's interest on the debenture stocks, and a contribution towards the staff benevolent fund. Net revenue for 1940 was £212,500.

Budapest Port Extension.—Plans for a new dock on the River Danube at Ujpest (New Pest), the northern part of the twin city, on the east bank of the Danube, have been completed. Work was begun in 1941 on two small docks, which are part of the larger plan. The present docks are chiefly on the east bank of the river at the southern end of the town. The Ferencvarot railway marshalling yard serves these docks. The northern marshalling yard at Rakos-Rendezo would be convenient to serve the new Ujpest docks.

South Manchuria Railway. — To finance the development of its Manchurian and North China system the South Manchuria Railway Company issued, during 1941, new debentures totalling 140,000,000 yuan, and the issue this year of further debenture loans aggregating 260,000,000 yuan is expected. Last April the company issued 4·3 per cent. debentures amounting to 40,000,000 yen, of which 16,000,000 yen was taken over by a consortium of banks, 5,000,000 yen by several Japanese provincial banks, and the balance offered on the open market.

Expropriation of Undertaking of Nitrate Railways Co. Ltd.—The Chilean Government issued on August 28, 1941, Decree No. 1868 to the effect that in virtue of the provisions of Article 28 of the General Law of Railways the property of this company should be expropriated and that the procedure should follow the provisions of Law No. 3313 of September 21, 1917, under which a commission of three men is to make a valuation of the undertaking, and a Bill is to be submitted to Congress to authorise the issue of State bonds to the amount of the valuation. The concession for the Iquique-La Noria section expired in 1936, but the company has continued to work it on an agreed rental arrangement with the Government. The following concessions govern the remaining three sections :— Second concession, Pisagua-Negreiros, reverts to the Government in 1957 ; in the third concession, lines connecting La Noria and Negreiros, and branch lines on the Pampa revert to the Government in 1974 ; and the fourth concession, for the lne from San Pablo to Lagunas, is held in perpetuity Pending further developments, the company continues to work the entire system as before.

Railways Save Fuel by Using Briquettes.—The railways have placed orders for several thousands of tons of briquettes. It is estimated the railways can take up to 25,000 tons of briquettes a week, and by co-operation with manufacturers the most suitable weights and shapes are being investigated. The use of briquettes for locomotive fuel is being adopted to increase the local stocks of coal of the railways during the summer months.

Transport Services Limited.—Announcement is made of an offer by this company of 200,000 ordinary shares of 5s. to ordinary shareholders at par, in the proportion of one share for every seven held on May 20, any shares held in excess of a multiple of seven to be excluded. The new shares will rank *pari passu* in all respects with the existing ordinary shares, except that they will not be entitled to participate in any distribution made in respect of the financial year ended May 31, 1942.

C.N.R. Hotel Results.—The Chateau Laurier Hotel in Ottawa, the largest of the Canadian National Railway hotels, made an operating profit in 1941 of $405,744. The Nova Scotian Hotel, of Halifax, was second, with a profit of $108,000, and Jasper Park third, with $50,000. The new Vancouver Hotel made a profit of $100,260, but this is operated by the Vancouver Hotel Company, owned jointly by the Canadian National and Canadian Pacific Railways. The old Vancouver Hotel has been taken over by the National Defence Department at a rental of $1,000 a month.

The Mozambique Railways.—The railway system of the Portuguese East African Colony of Mozambique is 1,803 km. (1,120 miles) in extent, of which 1,182 km. (734 miles) belong to the State, and the remainder to the Government of Manica & Sofala. The mileage is made up of the following lines with their respective gauges :—

	3 ft. 6 in. km.	2 ft. 6 in. km.
Lourenço Marques	365	—
Inhambane	90	140
Quelimane	145	—
Mozambique	442	—
Territory of Manica & Sofala ...	621	—
Totals	1,663 (Miles) (1,033)	140 (87)

The Colonial Administration also operates 2,297 km. (1,427 miles) of road motor services, and 2,890 km. (1,796 miles) of air lines.

Nitrate Railways Co. Ltd. Report.—Gross receipts for the year 1941 totalled £152,043, against £181,338 for 1940, a decrease of £29,295, due partly to a reduction of the movement of heavy up cargo, coal, and petroleum, and partly to the lower sterling value of the Chilean peso. Expenditure was £167,566, against £182,850, a decrease of £15,284. Increases in currency salaries and wages resulting from new social laws, an arbitration award affecting workmen's wages, and the higher cost of fuel made it impossible to offset the whole of the fall in gross receipts by a corresponding reduction in working expenses. Credits on net revenue account, including £184,187 brought forward, show a net balance of £219,339. The directors recommend a dividend of 1¼ per cent. on the ordinary and preferred converted ordinary shares, which will absorb £36,225, and leave £183,114 to be carried forward.

Swiss Federal Railways.—The official German news agency states that Swiss Federal Railways working in April, 1942, showed an increase in passenger traffic, a decline in goods traffic, and a further rise in operating expenses. Receipts were fr. 40,040,000 and expenses were fr. 22,160,000 ; the latter figure is an increase over that of April, 1941, of nearly

British and Irish Railway Stocks and Shares

Stocks	Highest 1941	Lowest 1941	Prices June 14, 1942	Prices Rise/Fall
G.W.R.				
Cons. Ord.	43⅜	30⅜	45½	—
5% Con. Pref. ...	109½	83½	109½	– 1
5% Red. Pref. (1950)	105½	96½	106	– 1
4% Deb.	113½	102½	110½	—
4½% Deb.	115	105⅝	112½	—
4½% Deb.	121½	112	120½	—
5% Deb.	132	122	133	—
2½% Deb.	70	62⅜	73	—
5% Rt. Charge ...	129½	116	129½	– 1
5% Cons. Guar. ...	128	110½	127½	—
L.M.S.R.				
Ord.	17½	11	19½	– ½
4% Pref. (1923) ...	53	33½	55	—
4% Pref.	68½	48½	72½	—
5% Red. Pref. (1955)	97⅛	77	99⅛§	– 1
4% Deb.	105½	97	104§	– 1
5% Red. Deb. (1952)	110½	106½	109½	—
4% Guar.	100	85½	100½	– 1
L.N.E.R.				
5% Pref. Ord. ...	3⅜	2⅜	4½	– ½
Def. Ord.	2	1½	2¼	—
4% First Pref. ...	52½	33	54	+ 1
4% Second Pref. ...	19⅜	10	22	+ ½
5% Red. Pref. (1955)	79½	52	89	—
4% First Guar. ...	90½	74½	94½	—
4% Second Guar. ...	80½	59	85½	—
3% Deb.	79⅛	68⅜	79½§	– ½
4% Deb.	104	91½	103§	– 2
5% Red. Deb. (1947)	106	102½	104	—
4½% Sinking Fund Red. Deb.	103½	99½	103§	– 1
SOUTHERN				
Pref. Ord.	65½	43⅜	65½	+ 1
Def. Ord.	15⅝	9	16½	+ ⅛
5% Pref.	107	77½	107½	– 1
5% Red. Pref. (1964)	107	89½	108½	—
5% Guar. Pref. ...	128	111	127½	—
5% Red. Guar. Pref. (1957)	114⅛	107½	113½	—
4% Deb.	112	102½	106½§	– 2
5% Deb.	130½	119	129§	– 3
4% Red. Deb. (1962–67)	108½	102	108½§	– 1
4% Red. Deb. (1970–80)	108½	102½	108½§	– 1
FORTH BRIDGE				
4% Deb.	99½	90½	108	+ 3½
4% Guar.	99	85½	104½	—
L.P.T.B.				
4½% "A"	120½	109½	116½	– 1
5% "A"	130½	115½	126½	– 1
4½% "T.F.A." ...	103½	99½	100	—
5% "B"	117	102	113½	– 3
"C"	46½	28½	40½	—
MERSEY				
Ord.	24½	19½	21½	+ 1½
4% Perp. Deb. ...	100	90	100	—
3% Perp. Deb. ...	73½	63	78	—
3% Perp. Pref. ...	58	51½	58	—
IRELAND				
BELFAST & C.D.				
Ord.	4	4	9	—
G. NORTHERN				
Ord.	14½	3	20 7/16	– ½
G. SOUTHERN				
Ord.	14½	5	21	—
Pref.	17	10	18	– ½
Guar.	44	16	36½	– ½
Deb.	61	42	61½	—

§ ex dividend

OFFICIAL NOTICES

Canadian National Railway Company

WELLINGTON GREY & BRUCE RAILWAY COMPANY 7 PER CENT. BONDS

NOTICE IS HEREBY GIVEN that the estimated earnings of the Wellington Grey & Bruce Railway Company for the half-year ending 30th June, 1942, applicable to meet outstanding interest on the above Bonds redeemed up to and including 1st January, 1942, will admit of the payment of £5 17s. 6d. per £100 Bond, and that this payment will be applied as follows, viz. :—

£2 6s. 2d. balance due for Coupon No. 122 due 1st July, 1931 ;

£3 10s. 0d. in full payment of Coupon No. 123, due 1st January, 1932 ; and 1s. 4d. on account of Coupon No. 124 due 1st July, 1932, and will be made on and after 1st July, 1942, at the offices of the Canadian National Railway Company, Orient House, 42-45, 45, New Broad Street, London, E.C.2, England.

The coupons must be left three clear days for examination.

A. H. CONEYBEARE,
European Secretary & Treasurer.

London, 11th June, 1942.

London and North Eastern Railway Company

NOTICE is hereby given that the Directors have fixed July 1st at the close of business as the date for striking the Balances of the Company's Guaranteed, Preference and Ordinary Stocks. Interim Dividends declared for the half-year ending 30th June, 1942, will be payable only to the Stockholders whose names are registered in the books of the Company on the date so fixed.

Deeds of Transfer should, therefore, be lodged with the Registrar of the Company at Hamilton Buildings, Liverpool Street Station, London, E.C.2, before 5 p.m. on 1st July.

By Order,
P. J. DOWSETT,
Secretary.

Marylebone Station,
London, N.W.1.
19th June, 1942.

OFFICIAL ADVERTISEMENTS

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is 9.30 a.m. on the preceding Monday. All advertisements should be addressed to:—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

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fr. 3 million. The surplus, out of which will be defrayed capital expenses and the writing down of various amounts, is fr. 17,880,000, or about fr. 2 million less than in April, 1941. For the first four months of the year there was a decline in the operating surplus of fr. 13,800,000 compared witn the corresponding period in 1941.

Great Southern Railways (Eire).—For the 22nd week of 1942 the Great Southern Railways (Eire) report passenger receipts of £35,162 (against £47,396), and goods receipts of £55,529 (against £41,469), making a total of £90,691 (against £88,865) for the corresponding period of the previous year. The aggregate receipts to date are passenger £710,569 (against £792,542), goods £1,323,787 (against £1,110,481), making a total of £2,034,356 (against £1,903,023).

John Fowler & Co. (Leeds) Ltd.—By the John Fowler & Co. (Leeds) Ltd. (Transfer of Shares) Order, 1941, the Minister of Supply transferred all the shares of this undertaking to his nominees, and the Treasury has now, in exercise of the powers conferred by paragraph (5) of Regulation 78 of the Defence (General) Regulations, 1939, made the John Fowler & Co. (Leeds) Ltd. (Price of Shares) Order, 1942. This Order, dated May 26, fixes the price to be paid by the Minister of Supply in respect of the shares so transferred to his nominees at £2 5s. a share.

The Stockholm-Nynäs Railway.—This Swedish railway company returned a gross surplus of Kronor 555,330 for 1941, a reduction of more than 29 per cent. compared with the 1940 gross surplus of Kronor 782,673. The net surplus receded from Kronor 143,227 in 1940 to Kronor 121,657, about 15 per cent. The number of passengers increased by 15,147 to 1,130,000, a new high record ; the company has been able to record a continuous rise since 1931 when the passengers aggregated only 608,156. Producer-gas working was introduced experimentally on two of the company's railcars. The company's bus services conveyed 77,925 passengers in 1941, against 69,216 in 1940.

Spanish Locomotives and Rolling Stock.—It is stated from Madrid that, of 300 locomotives ordered for Spanish railways in 1939, only 11 per cent. had been delivered by the end of 1941, and that the delay in production is due to lack of copper, which has necessitated extensive alterations in design. Repairs have been made to 631 engines, some of which were still in service, and some of which had been condemned already in 1939. Repairs have been made to 25,000 wagons also, and 2,500 new wagons are said to have been delivered by the end of 1941, out of the 6,000 ordered in 1939. No additions have been made to coaching stock, but 2,700 coaches have been repaired since 1939. Spain had 2,800 locomotives, 69,200 wagons, and 4,383 coaching vehicles in 1935 ; in 1939 the figures were 1,837, 41,700, and 1,740 respectively.

New South Wales Railways.—The gross receipts for the quarter ended December 31, 1941, were £6,830,062, an increase of £903,346 on the corresponding period of 1940. Expenditure was £695,399 higher at £4,542,636 and the train-mileage increased by 765,087 to 9,003,755. Goods traffic was 4,662,830 tons (against 4,193,102 tons), livestock carried was 229,664 tons (against 215,065), and the number of passengers carried was 55,041,359, or 6,884,771 more than in 1940.

Walton Pier Fire.—The pier and two pavilions at Walton-on-the-Naze were destroyed by fire on May 30. When first built, about seventy years ago, the pier was only a quarter of a mile long, but in 1888 it was extended by another quarter of a mile to accommodate passenger steamers from London, Margate, and Ramsgate. For many years there was an electric railway along the pier, which became worn out and was replaced at the beginning of the 1936 season by a pneumatic-tyred railcar with horizontal guide wheels running in what was virtually a timber trough. Running wheels moved along flat wooden rails flanked on the outside by another pair of wooden rails on a higher level, upon the side of which the guide wheels pressed. This battery vehicle, built by Electricars Limited, was illustrated in THE RAILWAY GAZETTE of June 25, 1937 (page 1201).

Bridge to Link Argentina and Brazil.—An international bridge over the Uruguay River between Argentina and Brazil is to be built, in accordance with the protocol of the Argentinean-Brazilian treaty of November, 1941. The requisite call for tenders has already been made in Argentina. A full six months will necessarily elapse before construction contracts are signed and work begun. The entire work, it is estimated, will require 30 months to complete. The bridge will be 1,419 metres (4,655 ft.) in length and will span the river at Pas de Los Libres on the Argentine side and the Uruguayana on the Brazilian. The cost of the completed structure will be shared equally by both countries. The bridge will consist of 10 sets of arches of 140 metres (459 ft.) each, or 40 single arches of 35 metres (115 ft.) and a central span of 19 metres (62 ft.). Each country's share of the bridge cost and supplementary works is estimated at approximately $1,058,168 in U.S.A. currency.

Canadian Pacific Railway Company.—At a meeting of the board of directors held on June 9, a dividend of 2 per cent. on the preference stock in respect of the year 1942 was declared payable on August 1, 1942, to stockholders of record at 3 p.m. on June 30, 1942.

Wellington, Grey & Bruce Railway Company.—Estimated earnings for the half-year ending June 30, 1942, applicable to meet outstanding interest on the 7 per cent. bonds redeemed up to and including January 1, 1942, will admit of the payment of £5 17s. 6d. on each £100 bond. This payment will be applied as follows : £2 6s. 2d. balance due for Coupon No. 122 due July 1, 1931, £3 10s. 0d. in full payment of Coupon No. 123 due January 1, 1932, and 1s. 4d. on account of Coupon No. 124 due July 1, 1932, and will be made on and after July 1 next at the offices of the Canadian National Railway Company, 42-45, New Broad Street, E.C.2.

L.M.S.R. Claims World Record Non-Stop Run.—The claim to the world's long distance non-stop record is made on behalf of two L.M.S.R. trains which run non-stop over the 243¼ miles between Crewe and Glasgow in both the Up and Down directions. They are the 9.15 p.m. express from Euston to Glasgow and the 9.30 p.m. express from Glasgow to Euston. The record for periodical non-stop runs performed at regular intervals, is almost certainly held by the L.M.S.R. also, as once every week a relief train is run 300 miles without stop from Euston to Carlisle. An article on British non-stop runs in 1942, with a table, was given in our June 5 issue (page 641).

Contracts and Tenders

The following orders have been placed by the South Indian Railway to the inspection of Messrs. Wolfe Barry, Robert White & Partners :—

Stewarts and Lloyds Limited : 236 solid drawn steel flue tubes and 1,319 solid drawn steel boiler tubes.

North British Locomotive Co. Ltd. and Vulcan Foundry Limited : Miscellaneous locomotive spare parts.

Drabble & Sanderson Limited : 36 high speed steel cutters for woodworking machines.

John Levick Limited : 9 porcelain wash basins for first class carriages.

Railway Stock Market

The latest turn in the war news has had a reactionary influence on Stock Exchange markets at the time of writing. In most sections, quotations were lowered as a precautionary measure, although the general undertone remained fairly steady when it was apparent that very little selling was likely to develop. Sentiment was assisted by the absence of any heavy selling, because this indicates continued confidence and widespread willingness to take a long view. There was, however, contraction in the volume of business, and the lower values failed to attract buyers. As was to be expected, home railway securities reflected the prevailing trend, and the junior issues have reacted sharply after their recent improvement. Nevertheless, the market remains hopeful that there may be improvement in some of the forthcoming interim dividend decisions, current views in connection with which have been mentioned in these notes. Present arrangements are that the Southern announcement is likely to be made on July 23, the G.W.R. and L.N.E.R. on July 24, and the L.M.S.R. on July 30. Yields on the junior stocks continue to be considered attractive, and there is, of course, every reason to suppose that the total dividends are likely to be maintained for the year. Among preference stocks, L.M.S.R. senior preference continues to offer a generous yield having consideration for its undoubted investment merits under the financial agreement. Similar remarks apply to L.N.E.R. first and second guaranteed and also to this railway's first preference stock. Nevertheless, it is very unlikely in present conditions that home railway securities will move against the general market trend, although over a period it is quite possible that their merits will become more widely recognised, and there may be a good improvement in values which would bring the yields more into line with those ruling on other classes of securities. Following their recent rise, South American and other foreign railway stocks have tended to react, although, at the time of writing, they show improvement on balance in many instances. In most cases, debenture stocks have remained very firmly held, and where they moved lower in price this was attributed to a check to the recent increase in demand, very little selling having been in evidence.

Great Western ordinary has reacted to 45½ at the time of writing, which compares with 46¼ a week ago; the market is continuing to talk of a possibility of the interim payment being improved from 1½ per cent. to 2 per cent. Great Western preference was lower at 108½, and fractional declines were also shown by the guaranteed and debenture stocks. The view is current that the present market reaction may perhaps provide a favourable opportunity to purchase home railway prior charges. In accordance with the general trend, L.M.S.R. ordinary has moved down from 20½ to 19⅜; the senior preference at 72 has lost half-a-point at the time of writing, but on balance the 1923 preference improved by this amount to 55. This railway's 4 per cent. debentures were slightly lower at 103½; the guaranteed stock was 100½. Among L.N.E.R. issues, the second preference failed to keep best prices touched recently, but at 22 was fractionally higher as compared with a week ago. L.N.E.R. first preference was unchanged at 54, and among guaranteed stocks, the firsts were 94 and the seconds 85. L.N.E.R. 3 per cent. debentures eased slightly to 79. After improving to 65½, Southern preferred has gone back to 64½; the deferred was 16¼, compared with 16⅜ a week ago. Southern 4 per cent. debentures showed a fractional decline to 106½, as did the guaranteed stock at 126½, and the 5 per cent. preference was 107½, London Transport "C" at 41 was half-a-point better on balance, but the 5 per cent. "A" stock is slightly lower at 126½.

Among foreign railway stocks, B.A. Gt. Southern 4 per cent. debentures were 57, and B.A. Western and Central Argentine 4 per cents were 49½ and 36 respectively. San Paulo ordinary at 55 was again better on balance, but Antofagasta preference lost part of its recent improvement. Various Indian railway stocks were again better. Canadian Pacific had a steady appearance.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open 1941-42	Week Ending	Traffic for Week: Total this year	Traffic for Week: Inc. or Dec. compared with 1941	No. of Weeks	Aggregate Traffics to date: Totals: This Year	Aggregate Traffics to date: Totals: Last Year	Aggregate Traffics to date: Increase or Decrease	Shares or Stock	Prices: Highest 1941	Prices: Lowest 1941	Prices: June 12, 1942	Yield% (See Notes)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	834	7.6.42	16,840	— 2,970	23	481,750	407,330	+ 74,420	Ord. Stk.	10¼	3½	9¼	Nil
	Argentine North Eastern	753	6.6.42	ps. 207,300	+ ps. 6,800	49	ps. 8,862,500	ps. 7,035,000	+ ps.1,827,500	,,	4	1	5	Nil
	Bolivar	174	May,1942	4,605	+ 405	21	23,063	19,132	+ 3,931	6 p.c. Deb.	5	5	10	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	8	2½	13½	Nil
	Buenos Ayres & Pacific	2,801	6.6.42	ps. 1,605,000	+ ps. 65,000	49	ps. 71,776,000	ps. 70,503,000	+ ps.1,273,000	Ord. Stk.	7¾	1¼	5	Nil
	Buenos Ayres Great Southern	5,080	6.6.42	ps. 2,428,000	+ ps.315,000	49	ps.119,939,000	ps.109,186,000	+ ps.10,553,000	Ord. Stk.	10¾	3¼	9	Nil
	Buenos Ayres Western	1,930	6.6.42	ps. 967,000	+ ps.116,000	49	ps. 42,228,000	ps.38,739,000	+ ps.3,489,000	,,	9	2¼	7¼	Nil
	Central Argentine	3,700	6.6.42	ps. 1,786,200	+ ps.103,050	49	ps. 86,126,900	ps.80,550,750	+ ps.5,576,150	,,	8¼	2¼	6½	Nil
	Do	—	—	—	—	—	—	—	—	Dfd.	2½	½	3½	Nil
	Cent. Uruguay of M. Video	972	7.6.42	32,250	+ 1,959	49	1,255,693	1,151,116	+ 104,577	Ord. Stk.	9½	1	6½	Nil
	Costa Rica	262	May, 1942	15,651	— 3,810	46	228,220	218,358	+ 9,862	Stk.	15½	11½	13	Nil
	Dorada	70	Apr., 1942	14,180	+ 1,680	17	47,664	49,200	— 1,536	1 Mt. Db.	97	97	90½	6¾
	Entre Rios	808	6.6.42	ps. 277,200	+ ps. 16,000	49	ps. 12,714,400	ps.10,390,200	+ ps.2,324,200	Ord. Stk.	6½	½	6	Nil
	Great Western of Brazil	1,030	6.6.42	8,500	+ 1,500	23	230,700	222,200	+ 8,500	Ord. Sh.	11/-	1/-	¾	Nil
	International of Cl. Amer.	794	Apr.,1942	$100,091	— $36,249	16	$613,915	$429,516	+ $184,399	—	—	—	—	—
	Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref.	¾	6d.	½	Nil
	La Guaira & Caracas	22¾	May,1942	5,965	+ 730	21	32,133	30,145	+ 1,988	—	—	—	—	—
	Leopoldina	1,918	6.6.42	29,269	+ 4,481	23	667,077	535,271	+ 131,806	Ord. Stk.	4	½	5	Nil
	Mexican	483	7.6.42	ps. 304,100	— ps. 26,000	23	ps. 7,740,400	ps. 7,213,900	+ ps. 526,500	,,	⅜	¼	¾	Nil
	Midland of Uruguay	319	Apr.,1942	13,856	+ 1,640	41	136,984	120,202	+ 16,782	—	—	—	—	—
	Nitrate	386	31.5.42	8,891	+ 4,218	21	63,766	42,957	+ 20,809	Ord Sh.	66⅜	1½	3¾	3 9/16
	Paraguay Central	274	6.6.42	$3,052,000	— $1,107,000	49	$174,866,000	$162,214,000	+ $12,652,000	Pr. Li. Stk.	43/-	29	45½	13 11/16
	Peruvian Corporation	1,059	May, 1942	81,005	+ 17,967	47	833,448	709,504	+ 123,944	Pref.	6½	1⅛	11½	Nil
	Salvador	100	Apr., 1942	c 71,000	+ c 5,000	41	c 853,172	c 683,683	+ c 169,489	—	—	—	—	—
	San Paulo	153¼	31.5.42	38,252	— 3,110	22	769,323	793,295	— 23,972	Ord. Stk.	52	24½	55	3¾
	Taltal	160	Mar.,1942	3,900	+ 1,270	39	39,015	25,140	+ 13,875	Ord. Sh.	1	6/-	1⅜	Nil
	United of Havana	1,346	7.6.42	34,737	+ 15,276	49	1,558,276	1,190,796	+ 367,480	Ord. Stk.	2½	¼	3	Nil
	Uruguay Northern	73	Apr.,1942	980	— 41	41	12,070	11,329	+ 741	—	—	—	—	—
Canada	Canadian National	23,562	7.6.42	1,464,400	+ 279,000	23	28,989,600	24,400,000	+ 4,589,600	—	—	—	—	—
	Canadian Pacific	17,139	7.6.42	939,400	+ 117,800	23	20,897,200	17,090,400	+ 3,806,800	Ord. Stk.	13 7/16	7¼	10½	Nil
India†	Barsi Light	202	Mar.,1942	15,570	— 390	52	165,217	167,280	— 2,063	—	—	—	—	—
	Bengal & North Western	2,090	Apr., 1942	273,450	— 7,592	4	273,450	281,042	— 7,592	Ord. Stk.	345	253	352½	5 7/16
	Bengal-Nagpur	3,267	10.3.42	263,175	— 127	50	9,354,150	8,504,657	+ 849,493	,,	101	95⅜	96	4 7/16
	Madras & Southern Mahratta	2,939	Mar. 1942	253,125	+ 25,105	52	7,338,605	6,278,738	+ 1,059,867	,,	105 7/16	101½	99	7 7/16
	Rohilkund & Kumaon	571	Apr.,1942	60,600	— 8,602	4	60,600	69,202	— 8,602	,,	342	290	352½	4 7/16
	South Indian	2,402	31.3.42	190,120	+ 43,235	52	5,358,080	4,609,099	+ 748,981	,,	100	87	95	3 11/16
Various	Beira	204	Mar.,1942	85,419	—	26	453,891	—	—	—	—	—	—	—
	Egyptian Delta	607	28.3.42	8,235	+ 2,841	49	315,364	224,034	+ 91,330	Prf. Sh.	1½	29/-	2½	Nil
	Manila	—	—	—	—	—	—	—	—	B. Deb.	68	45	35	10
	Midland of W. Australia	277	Apr., 1942	25,627	+ 9,494	37	203,111	150,333	+ 52,778	Inc. Deb.	90½	85½	89½	6 11/16
	Nigerian	1,900	28.2.42	97,375	+ 29,933	47	2,894,620	2,124,026	+ 770,594	—	—	—	—	—
	Rhodesia	2,442	Mar., 1942	505.912	—	26	2,879,180	—	—	—	—	—	—	—
	South Africa	13,291	18.4.42	779,751	+ 81,555	3	2,005,219	1,841,784	+ 163,435	—	—	—	—	—
	Victoria	4,774	Jan., 1942	1,301,285	+ 378,792	29	7,938,536	6,547,339	+ 80,660	—	—	—	—	—

Note. Yields are based on the approximate current prices and are within a fraction of ⅛ Argentine traffics are given in pesos
† Receipts are calculated @ 1s. 6d. to the rupee § ex dividend